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OVERSIGHT HEARINGS—MATTERS RELATING TO THE OCTOBER 19 MARKET BREAK

HEARINGS

BEFORE THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

THE ISSUES SURROUNDING THE MARKET BREAK—OVERSIGHT HEARINGS ON THE OCTOBER 1987 STOCK MARKET CRASH

MARCH 17 AND APRIL 27, 1988

Printed for the use of the
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OVERSIGHT HEARINGS—MATTERS RELATING TO THE OCTOBER 19 MARKET BREAK

THURSDAY, MARCH 17, 1988

U.S. SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY,
Washington, DC.

The committee met, pursuant to notice, at 9:35 a.m., in room SD-562, Dirksen Senate Office Building, Hon. Patrick J. Leahy (chairman of the committee) presiding.

Present or submitting a statement: Senators Leahy, Daschle, McConnell, Bond, and Karnes.

STATEMENT OF HON. PATRICK J. LEAHY, A U.S. SENATOR FROM VERMONT

The CHAIRMAN. Good morning. Oh, heck, I have always wanted to do this at the beginning of a committee meeting. The top of the mornin' to all of you. [Laughter.]

When you have a name like mine, you have to have a chance to do that at one point during St. Patrick's Day. I wish you all well, and I am glad you are here. Just to go over a tiny bit what we will do, I understand we have a vote at 10:10 or thereabouts. It will be a half-hour vote, and Senator Lugar, the ranking member of the committee, is coming over. What I would suggest we do to try to keep everybody on schedule is that, when the vote starts, one of us will take off to vote, the other one will keep the hearing going. So there will not be a break in it.

It has been nearly 5 months since the world's financial markets were rocked by the largest 1-day decline in history. We have seen at least a half dozen major reports on the market break since October 19. We are pleased today to have a number of the individuals responsible for three of these primary reports to testify before the committee.

Today's hearing marks the beginning of what will be a series in this committee on the issues surrounding the market break last October. In late April, I plan to hold another hearing where we will hear from the General Accounting Office, the exchanges, and other market participants, including the users of derivative products.

I am prepared to introduce legislation to create an Intermarket Coordinating Council to require the CFTC, SEC, Federal Reserve Board, and the Department of the Treasury to coordinate and cooperate on intermarket issues. I circulated a draft of this bill to the regulators two weeks ago. I am looking forward to their responses. I should add that I believe many of the goals of the bill can be accomplished by the regulators themselves on their own, without legislation.

In that regard, I was pleased that earlier this week the administration circulated a draft executive order to create a Coordinating Council with a structure similar to that in my draft legislation. One can applaud the administration's recognition that something needs to be done, but I want to know what the full commitment is to that goal and so I intend to monitor the administration's efforts closely. If their progress toward better coordination falters, then I will push forward with this legislation.

I have a much longer statement, but in the interest of time I will place it in the record. Additionally, Senators McConnell and Karnes have submitted statements for the record. These will be made a part of the record.

[The prepared statements of Senators Leahy, McConnell, Bond, and Karnes follow:]

Statement of The Honorable Patrick Leahy, Chairman
Committee on Agriculture, Nutrition, and Forestry
Hearing on Matters Relating to the October 19 Market Break

March 17, 1988

It has been nearly five months since the world's financial markets were rocked by the largest one-day decline in history. We have seen at least a half dozen major reports on the market break since October 19th. We are pleased today to have a number of the individuals responsible for three of these reports to testify before the Committee.

Today's hearing marks the beginning of what will be a series in this Committee on the issues surrounding the market break last October. In late April, I plan to hold another hearing where we will hear from the General Accounting Office, the exchanges, and other market participants, including the users of derivative products.

During the past few months, I have reviewed the many reports, talked with experts, and solicited suggestions from all parts of the financial community. I would like to share some of my preliminary observations.

Let me start with three brief general points:

First, I accept the Brady Commission's one market theory. It's also accurate to say that we have a linked, global market for stocks, stock options, stock index futures and stock index options. At some level, I think we all knew that before the report. But what Senator Brady and the Commission did was to force all of us to better understand the implications for regulators, exchanges, traders, and customers.

It's important to understand these issues better because there is no turning back. We can't unplug the computers. We're not going to delist the products. If anything, we'll keep adding technology and complexity, as when stock index futures contracts begin trading in Tokyo.

Second, we won't turn back because stock index futures and options are important new tools for financial managers. They have a positive effect on the stock markets and the economy in general. These derivative products add liquidity to the markets, spread risk, speed up price determinations and permit managers of stock portfolios to protect the value of their investments. These advantages help more than the sophisticated traders. They aid capital formation and benefit the average citizen who shares in these markets through mutual and pension funds.

Third, the Federal regulators, the exchanges and most of the market participants can be proud of the actions they took within their own markets. While there are some notable exceptions documented in the Commission's studies, most market participants performed admirably during the crisis. The CFTC, the SEC and especially the Federal Reserve Board did a terrific job of responding to the crisis.

But no one should take much pride in how intermarket problems were identified and handled before, during, and after the crash. The Federal regulators often failed to plan, the exchanges often failed to talk, and the whole system indulged in more carping than cooperation. The atmosphere has improved somewhat, but more needs to be done.

I am prepared to introduce legislation to create an Intermarket Coordinating Council to require the CFTC, SEC, Federal Reserve Board, and Department of Treasury to coordinate and cooperate on intermarket issues. I circulated a draft of this bill to the regulators two weeks ago. I am looking forward to their responses. I should add that I believe many of the goals of the bill can be accomplished by the regulators themselves on their own, without legislation.

In that regard, I was pleased that earlier this week the Administration circulated a draft executive order to create a coordinating council with a structure similar to that in my draft legislation. However, the Administration's response was late in coming. One can applaud their recognition that something needs to be done but still be troubled by the full commitment to the goal. I intend to monitor the Administration's efforts closely. If their progress toward better coordination falters, I intend to push forward with this legislation.

Statement of Senator Mitch McConnell

Committee on Agriculture, Nutrition and Forestry

March 17, 1988

Mr. Chairman:

I want to begin by commending the distinguished Senator from Vermont for calling this hearing. This committee has an important responsibility to ensure that the commodity futures and options markets operate effectively, efficiently and fairly, even during times of financial crisis such as occurred on October 19 of last year. The panic which accompanied the severe decline in stock prices carried over, as one would expect, into the futures and options markets. The Commodity Futures Trading Commission had the unenviable task of ensuring that the markets remained orderly and responsive to the forces of supply and demand.

If there is anything positive about the October 19th crash, it is the fact that we were able to study the regulatory process at work. This hearing will be helpful in studying the workings of the CFTC and determining how effective our current regulatory mechanisms actually are.

I will state that I am hesitant about considering any proposals to drastically alter the regulatory environment which governs our commodity futures and options markets. Clearly there is cause to step up coordination between the various regulatory agencies. Clearly there is a pressing need to safeguard the integrity of these markets, so that they may continue their important function. To that end, I look forward to hearing the thoughts and insights of today's witnesses. Specifically, the testimony of Dr. Gramm will be particularly interesting, and I welcome her to the Agriculture Committee today.

Again, I thank the Distinguished Chair.

STATEMENT BY SENATOR CHRISTOPHER S. BOND (R.MO)
BEFORE THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY
THURSDAY, MARCH 17, 1988, 9:30 A.M.

MR. CHAIRMAN, I WOULD LIKE TO BEGIN BY COMMENDING BOTH YOU AND THE DISTINGUISHED RANKING MINORITY MEMBER, SENATOR LUGAR, FOR SCHEDULING A HEARING TO ALLOW THIS COMMITTEE TO ANALYZE IMPORTANT ISSUES WHICH HAVE SURFACED IN LIGHT OF THE OCTOBER 19 MARKET CRASH. THERE ARE SOME THINGS THAT MUST BE DONE, HOWEVER WE NEED TO ENSURE WE DO THE RIGHT THING. AS WE ALL KNOW, REASONABLE PEOPLE CAN DIFFER ON THIS COMPLEX ISSUE. IT IS IMPORTANT, HOWEVER, THAT EVERYONE FOCUS ON THE ISSUE OF MAINTAINING EFFICIENT AND ORDERLY CAPITAL MARKETS.

MR. CHAIRMAN, AS YOU KNOW, THE SENATE BANKING COMMITTEE HAS ALREADY HELD MANY HEARINGS WITH REGARD TO THE OCTOBER 19 STOCK MARKET CRASH. I BELIEVE IT IS APPROPRIATE THAT THIS COMMITTEE ANALYZE THE FUTURES INDUSTRY'S ROLE IN NOT ONLY THE EVENTS WHICH PRECEDED THE DECLINE BUT ALSO THOSE THROUGHOUT THE SELL-OFFS AND ALSO WHAT TYPE OF ACTIONS HAVE BEEN UNDERTAKEN TO PREVENT ANOTHER CRASH.

AS A MEMBER OF THE BANKING COMMITTEE, I HAVE ACCUMULATED LITERALLY VOLUMES OF TESTIMONY REGARDING THIS ISSUE. I BELIEVE A NUMBER OF FACTORS CONTRIBUTED TO THE EVENTS OF OCTOBER 19--HUMAN GREED BID THE MARKET TO ARTIFICIAL HEIGHTS, CONGRESS EXHIBITED ITS INABILITY TO COPE WITH THE FEDERAL BUDGET DEFICIT AND WAS CONSIDERING PROTECTIONIST TRADE LEGISLATION AND THE HOUSE WAYS AND

MEANS COMMITTEE REPORTED OUT A PUNITIVE ANTI-TAKEOVER TAX BILL WHICH PANICKED ARBITRAGEURS. ONE OF MY MAIN CONCERNS IS THAT WE MAKE THE MARKET MACHINERY WORK AND HANDLE THE VOLATILITY THAT MAY BE CAUSED IN PART BY INSTITUTIONAL TRADING AND DERIVATIVE PRODUCTS. IN ADDITION, EXTREME CAUTION MUST BE EXERCISED TO ENSURE AGAINST ANY PROPOSED MARKET SOLUTIONS WHICH ARE DESIGNED ESSENTIALLY TO GIVE ONE MARKET AN EDGE OVER ANOTHER.

IT WAS RECENTLY REPORTED THAT THE ADMINISTRATION PLANS TO ESTABLISH AN INTERAGENCY COMMITTEE OF MARKET REGULATORS TO DEVELOP A CONSENSUS ON THE REGULATORY CHANGES NECESSARY TO PREVENT ANOTHER CRASH. THIS COMMITTEE, COMPRISED OF THE TREASURY SECRETARY AND THE HEADS OF THE SECURITIES AND EXCHANGE COMMISSION, COMMODITY FUTURES TRADING COMMISSION AND THE FEDERAL RESERVE, WOULD HAVE A GOLDEN OPPORTUNITY TO WORK TOGETHER TO DEVELOP SOUND RECOMMENDATIONS ON HOW TO IMPROVE OUR CURRENT SYSTEM. I AM HOPEFUL THAT THESE EXTREMELY KNOWLEDGEABLE INDIVIDUALS WOULD BE ABLE TO PUT ASIDE PAST DIFFERENCES AND SEIZE THE OPPORTUNITY TO DEVELOP CONSTRUCTIVE SUGGESTIONS. FURTHERMORE, IF THE INTERAGENCY COMMITTEE IS UNABLE TO AGREE AND WORK TOGETHER THIS WILL PROVIDE AN INCENTIVE FOR CONGRESS TO INTERVENE AND CREATE SOME TYPE OF SUPER REGULATOR.

MR. CHAIRMAN, I UNDERSTAND THAT YOU HAVE DRAFTED LANGUAGE WHICH WOULD FORMALIZE THIS INTERAGENCY COOPERATION BY PROVIDING

FUNDS FOR STAFF ETC. AGAIN, I VIEW THIS AS A POSITIVE STEP AND LOOK FORWARD TO WORKING WITH YOU IN WHATEVER WAY POSSIBLE.

FINALLY, I WOULD LIKE TO WELCOME OUR DISTINGUISHED WITNESSES. THE NAMES MAY BE THE SAME BUT THE AT LEAST WE ARE IN A DIFFERENT ROOM. I WOULD ESPECIALLY LIKE TO WELCOME DR. GRAMM AS THIS IS HER FIRST OF WHAT I HOPE WILL BE MANY VISITS TO THE AGRICULTURE COMMITTEE AS CHAIRMAN OF THE CFTC. THANK YOU ALL FOR COMING AND I LOOK FORWARD TO HEARING YOUR TESTIMONY.

OPENING STATEMENT: SENATOR DAVID K. KARNES

DATE: MARCH 17, 1988

SENATE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

I WANT TO COMMEND YOU MR. CHAIRMAN AND ALL THE PARTICIPANTS APPEARING BEFORE THIS COMMITTEE. MR. CHAIRMAN, I HAVE HAD THE OPPORTUNITY TO HEAR FROM MOST IF NOT ALL OF THESE EXPERT WITNESSES APPEARING BEFORE THE COMMITTEE TODAY. I FEEL LIKE I AM IN A UNIQUE POSITION BEING ONE OF TWO SENATORS SERVING ON BOTH THE SENATE BANKING, HOUSING, AND URBAN AFFAIRS COMMITTEE AS WELL AS THE AGRICULTURAL COMMITTEE. I AM VERY IMPRESSED WITH THE DETAILED ANALYSIS THAT HAS BEEN PREPARED BY THE BRADY COMMISSION, FEDERAL RESERVE, GAO, CFTC, NYSE, AMEX AND OTHERS THAT HAS BEEN PRESENTED TO THE BANKING COMMITTEE PREVIOUSLY AND WILL BE SHARED WITH THIS COMMITTEE TODAY. THE REPORTS PRESENT TO THIS COMMITTEE AND THE PUBLIC A FAIR AND UNBIASED ACCOUNTING ON THE EVENTS BEFORE AND AFTER THE OCTOBER 19 BREAK.

I CERTAINLY WANT TO TAKE THIS OPPORTUNITY TO COMMEND THE MAJOR PARTICIPANTS IN THE MARKET REGULATION ARENA IN CALMING THE EXTREME CONCERNS GENERATED BY THE EVENTS SURROUNDING THE MARKET BREAK. CHAIRMAN GREENSPAN'S EXCEPTIONAL HISTORICAL KNOWLEDGE PROVED CRITICAL IN THE FEDERAL RESERVE'S HANDLING OF THE LATEST CRISES. THE COORDINATED EFFORT OF THE FEDERAL RESERVE WITH CHAIRMAN RUDER OF THE SEC, AND THE CFTC PROVED CRITICAL IN REACTING TO THE EVENTS SURROUNDING OCTOBER 19.

THE PRECIPITOUS DECLINE IN THE STOCK MARKET IS LARGELY ATTRIBUTABLE TO A LOSS OF INVESTOR CONFIDENCE IN THE FUNDAMENTALS OF OUR ECONOMY. WHILE THERE MAY HAVE BEEN SEVERAL FACTORS CONTRIBUTING TO THAT LOSS OF CONFIDENCE, THE CONTINUED FEDERAL BUDGET DEFICIT, UNEXPECTEDLY HIGH TRADE DEFICIT, AND AN ANNOUNCEMENT BY THE HOUSE WAYS AND MEANS COMMITTEE THAT THEY WERE FILING LEGISLATION TO ELIMINATE TAX BENEFITS ASSOCIATED WITH THE FINANCING OF CORPORATE TAKEOVERS WERE LARGELY RESPONSIBLE. THIS OVERALL LACK OF CONFIDENCE CAUSED A COMBINATION OF INTENSE SELLING PRESSURE, MARKET MECHANISM FAILURE, AND BREAKDOWN OF INFORMATION PUT EXTREME DOWNWARD PRESSURE ON STOCK PRICES AND TREMENDOUS INCREASE IN VOLATILITY. AS THE COMMITTEE CONTINUES TO DISCUSS A NUMBER OF THE TECHNICAL PROBLEMS THAT RESULTED FROM THIS INTENSE SELLING PRESSURE, IT IS IMPORTANT FOR US TO KEEP IN MIND THE ULTIMATE CAUSES OF THAT LOSS OF CONFIDENCE.

NAME
DATE
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I AM PARTICULARLY CONCERNED ABOUT THE EFFECT THAT THE STOCK MARKET DECLINE HAS HAD ON THE SMALL INVESTOR AND THE SMALLER COMPANIES. SENATOR BRADY HAS COMMENTED PREVIOUSLY THAT THE INCREASED VOLATILITY AND UNCERTAINTY HAS SLOWED NEW INVESTMENT, HAMPERING THE RAISING OF CAPITAL, PARTICULARLY BY SMALLER COMPANIES. THIS SITUATION COULD HAVE A VERY DETRIMENTAL IMPACT ON THE MAJORITY OF COMPANIES IN MY STATE. CONSEQUENTLY, TO THE EXTENT THAT WE AS MEMBERS OF THE AGRICULTURE COMMITTEE, OUR COLLEAGUES ON THE BANKING COMMITTEE, THE REGULATORS OF THE VARIOUS STOCK MARKETS, AND THE MARKET REPRESENTATIVES THEMSELVES CAN ALLEVIATE SOME OF THE ANXIETY ON THE PART OF THE INVESTMENT COMMUNITY, OUR EFFORTS WILL BE VERY CONSTRUCTIVE INDEED.

AS WE PROCEED TO DISCUSS THE VARIOUS CIRCUMSTANCES SURROUNDING THE MARKET BREAK AND THE ACTIONS THAT WE CAN TAKE TO RESTORE THE INVESTOR'S CONFIDENCE, WE NEED TO CONTINUE TO BE MINDFUL OF THE CLOSE RELATIONSHIPS AMONG OUR DOMESTIC SECURITIES MARKETS, THEIR DERIVITIVE PRODUCTS, AND OUR INTERRELATIONSHIP WITH VARIOUS MARKETS ABROAD.

ONE OF THE MOST SIGNIFICANT RECOMMENDATIONS THAT HAS BEEN UNIVERSALLY AGREED TO IS THE NEED FOR CLOSER COORDINATION AND IMPROVED SHARING OF INFORMATION BY THE VARIOUS MARKET REGULATORS AND OVERSIGHT GROUPS. THIS SHARING OF INFORMATION AND COORDINATION IS ALSO IMPORTANT FOR THE TWO COMMITTEES IN THE SENATE RESPONSIBLE FOR MONITORING THE EQUITY AND FUTURES MARKET. MR CHAIRMAN, I HOPE THIS COMMITTEE AND THE BANKING COMMITTEE CAN SET THE EXAMPLE OF WORKING TOGETHER IN A COORDINATED FASHION DESPITE THE OBVIOUS TURF BATTLE THAT EXISTS BETWEEN THE TWO. SIMILAR TURF BATTLES EXIST AMONG THE VARIOUS EXCHANGES THEMSELVES, AS WELL AS THE VARIOUS MARKET REGULATORS. LET US SET THE EXAMPLE AS WE PROCEED TO FULFILL OUR RESPONSIBILITY HERE IN THE SENATE.

THANK YOU, MR. CHAIRMAN.

Don

The **Chairman**. I might say that we are delighted and privileged to have here a former member of the Senate, Senator Nicholas Brady, who wrote the Brady Report. I am delighted he did that and is willing to give that kind of service to the country in his private capacity.

I might say, and I do not want to embarrass Senator Brady, but as a member of the opposite party, I am one of the ones who regretted seeing him leave the Senate. He was one of the most valuable Members of the Senate during the time he was here.

Senator Brady, would you please come forward.

STATEMENT OF NICHOLAS F. BRADY, COCHAIRMAN, DILLON, READ & CO., INC., NEW YORK, NY, ACCOMPANIED BY JOEL COHEN, GENERAL COUNSEL TO THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS, NEW YORK, NY

Mr. **Brady**. Thank you, Senator Leahy, for the kind words, and if it is agreeable to you, I have asked Joel Cohen, who is counsel to the task force and a preeminent securities act lawyer in New York, to sit at the table here as well.

I have a 2-page statement which states some of the things that the task force has outlined before, and if it is OK with you, I will just go through it quickly.

The **Chairman**. Certainly.

Mr. **Brady**. I welcome the opportunity to appear before the committee this morning and present to you the findings of the Presidential Task Force on Market Mechanisms. I applaud the committee's willingness to confront the difficult and complex issues that have arisen after the break of October 19.

As the task force said in its report, October was the climax to two revolutions that have taken place in the 1980's—one technological, the other financial. This decade has seen a geometric increase in both the availability of widely disparate investment instruments and in the instantaneous transmission of information to a domestic and global audience. The fundamental conclusion of our report: that stocks, stock index futures, and options function as one market, is a direct offshoot of these two revolutions. When the task force reached this conclusion, it was obvious that the financial community's expectations for the markets had outstripped their capabilities.

The recommendations of the task force were derived directly from the one market conclusion. These recommendations were designed to help prevent a repetition of the events of mid-October and to provide an effective and coordinated response in the face of future market disorder. The task force concluded that one agency must have the authority to coordinate a few, but critical, intermarket issues, monitor intermarket activities, and mediate intermarket concerns. The issues that need to be coordinated by one agency are those which systematically and unavoidably influence all markets and include: one, clearing and credit mechanisms; two, margin requirements; three, circuit breaker mechanisms; and four, information systems to monitor intermarket activities. Acting on these issues from the perspective of a single marketplace imposes pervasive, unavoidable and possibly destabilizing influences on the market system as a whole. We must regard it as one market.

The task force examined the alternatives and weight of evidence and suggested that the Federal Reserve, with its broad global and domestic expertise, financial strength and independence, was best qualified to fill the role. However, should the choice of the Federal Reserve prove politically unsustainable, it is still crucial that some agency, whether newly created or existing, take on that responsibility. If action is not taken, the structural factors that contributed to the October decline will come together again in the form of a different mousetrap. Next time it could be the currency markets, the clearing and settlement systems, or any one of a number of other factors.

Since October there has been a serious dialog on what went wrong and how to correct it. On many issues, we are beginning to see an emerging consensus. For instance, there is currently widespread agreement in the industry that we need better coordination between the equity and derivative products markets. Unfortunately, this is where the music stops. There is not yet a consensus as to who should coordinate them and what type of coordination we should have. Naturally, each interested party tends to approach it from its own perspective. It is understandable, but the wrong way to approach this problemis through a turf battle. We must accept the premise that there is really one market, and it is from that perspective that we have to fashion the solutions.

To their great credit, the exchanges have already moved to address some of the issues the task force raised. These are steps in the right direction. However, I firmly believe that no lasting solution will be arrived at until it is solved by common agreement between New York and Chicago.

Our central need is to adapt a regulatory system to the structure of today's markets and to the demands we place on them. October exposed a number of shortcomings in the financial markets. The greatest mistake would be, either through inattention or inaction, to leave these weaknesses in place.

The Nation's equity markets have always served as a barometer of our national confidence in ourselves, the economy and our future. October went to great lengths to shake that confidence. We must act to restore confidence with modest but effective reforms that correct the markets' weaknesses while preserving their strengths. Thank you, Senator Leahy.

[The prepared statement and responses to Senator Daschle of Mr. Brady follow:]

STATEMENT OF NICHOLAS F. BRADY
BEFORE THE
SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY

Mr. Chairman and members of the Committee, I welcome the opportunity to appear before you today to discuss the findings of the Presidential Task Force On Market Mechanisms. Your Committee is currently faced with an historic opportunity to review the current state of our financial markets and address the problems that have been highlighted by the October 19 market break. I applaud the Committee's willingness to confront these difficult and complex issues.

October was the climax to two revolutions that have taken place in the 1980's - one technological, the other financial. This decade has seen a geometric increase in both the availability of widely disparate investment instruments and in the instantaneous transmission of information to a domestic and global audience. The fundamental conclusion of our report: that stocks, stock index futures and options function as one market, is a direct offshoot of these revolutions. When the Task Force reached this conclusion, it was obvious that the financial community's expectations for the markets had outstripped their capabilities.

The recommendations of the Task Force were derived directly from the one market conclusion. These recommendations were designed to help prevent a repetition of the events of mid-October and to provide an effective and coordinated response in the face of future market disorder. The Task Force concluded that one agency must have the authority to coordinate a few, but critical, intermarket issues, monitor intermarket activities and mediate intermarket concerns. The issues that need to be coordinated by one agency are those which systematically and unavoidably influence all markets and include (1) clearing and credit mechanisms, (2) margin requirements, (3) circuit breaker mechanisms, and (4) information systems to monitor intermarket activities. Acting on these issues from the perspective of a single marketplace imposes pervasive, unavoidable and possibly destabilizing influences on the market system as a whole.

We examined the alternatives and the weight of evidence suggested that the Federal Reserve, with its broad global and domestic expertise, financial strength and independence, was best qualified to fill the role. However, should the choice of the Federal Reserve prove politically unsustainable, it is still crucial that some agency, whether newly created or existing, take responsibility. If action is not taken, the structural factors that contributed to the October decline will come together again in the form of a different mousetrap. Next time it could be the currency markets, the clearing and settlement systems, or any one of a number of other factors.

Since October, there has been a serious dialogue on what went wrong and how to correct it. On many issues, we are beginning to see an emerging consensus. For instance there is currently widespread agreement in the industry that we need better coordination between the equity and derivative products markets. Unfortunately, this is where the music stops. There is not yet a consensus on what kind of coordination or by whom. Naturally, each interested party tends to approach it from its own perspective. But the wrong way to approach it is through a turf battle. We must accept the premise that there's really one market, and its from that perspective that we've got to fashion solutions.

To their credit, the Exchanges have already moved to address some of the issues the Task Force report raised. These are steps in the right direction. However, I firmly believe that no lasting solution will be arrived at until it is solved by common agreement between New York and Chicago.

Our central need is to adapt our regulatory system to the structure of today's markets and to the demands we place on them. October exposed a number of shortcomings in the financial markets. The greatest mistake would be, either through inattention or inaction, to leave these weaknesses in place.

The nation's equity markets have always served as a barometer of national confidence in ourselves, the economy and our future. October went great lengths to shake that confidence. We must act to restore confidence with modest but effective reforms that correct the markets' weaknesses while preserving their strengths.

Thank you.

DATE: March 17, 1988

TO: Senate Ag. Committee

FROM: Tom Daschle

SUBJECT: QUESTIONS FOR COMMODITY MARKET HEARING

QUESTIONS FOR TASK FORCE CHAIRMAN NICHOLAS BRADY

Could you describe what the credit situation was like in the financial markets the evening of October 19 and during the day of October 20. From news accounts I understand that several moneycenter banks would not provide credit to specialists and major brokerage firms the night of October 19 and the day of October 20, even after the Federal Reserve provided all the credit that was required to meet obligations. Credit was only given after the Fed called the banks and asked that credit be granted to the specialists and brokerage firm. What was the situation on October 19 and 20? Did you make any recommendations on how a credit crunch could be eliminated if we experience another market crash?

In your report you recommended a harmonization of margin requirements between the cash and futures markets. Are you recommending the exact numerical equivalent of margins for all markets or a margin system that would take into account the differences between the cash and futures markets?

What changes can be made in the market place to ensure an orderly market without driving the financial markets off-shore?

Your report recites the following facts concerning trading on October 20, 1987:

"At its opening, the NYSE had prohibited broker-dealers from using the DOT system to execute index arbitrage orders for their own accounts. As on Monday afternoon, the primary linkage between the two markets had been disconnected." (page 40)
Based on these facts, your report concludes:

"When the NYSE's automated stock order system, DOT, was rendered ineffective, index arbitrage became infeasible, robbing the index futures markets of much needed buying power. From the narrow perspective of the stock market, an inactive DOT system may have appeared beneficial, since it made program selling difficult. However, this contributed to the development of a futures discount which, in turn, put downward pressure on stock prices." (page 67)

In recent weeks, the New York Stock Exchange has proposed a rule that terminates the DOT system whenever stock prices rise or fall more than 50 points. Is this new rule in conflict with your report's conclusions concerning disconnecting the markets?

RESPONSE TO SENATOR DASCHLE's QUESTIONS

1. We talked to numerous commercial banks about their actions on the 19th and 20th. There was no indication that the banks did not honor previously agreed to lending agreements or accommodate the needs of their clients. As one might expect, the banks acted in a very cautious manner in the face of the extraordinary circumstances of that week. Pages 51-53 of the Task Force Report give a more detailed description of the credit situation on October 19th and 20th, as well as the importance of remedying the clearing and settlement systems' flaws.

2. We believe that margins for the futures market should be made consistent with regard to stock. This does not necessarily mean that they should be set at the same level. A number of factors, such as settlement time, may affect the precise comparability of margins and may not necessitate their exact equivalency. However, we feel that margins should be set at similar levels in order to control speculation and financial leverage. In the world of one market, it makes little sense to provide traders with different degrees of leverage depending on whether they enter through the stock or derivative door.

3. The Task Force called for simple non-intrusive changes to slow down the turbulence in the marketplace and restore investor confidence. The argument that our equity market will be driven overseas is based on the premise that the global equity market is a reality. Although we are moving toward 24-hour trading, we are not there yet. In this respect, the equity markets have lagged far behind both the currency and credit markets in the creation of global trading. While the New York and Chicago exchanges are closely linked, the international equity markets move sympathetically. The independent performance of global equities in the first quarter of 1988 showed that domestic factors are still the key to the performance of each individual market.

One reason for the relative independence of individual markets is the low volume of trading in foreign shares. To give you an example, the daily dollar volume of the Dow 30 stocks that trade on the London Stock Exchange represents only 1% of what is traded in these stocks on the U.S. markets. The percentage is even smaller in Tokyo. In short, the overseas exchanges do not currently satisfy any meaningful demand for U.S. equity. Moreover, the growth in volume of U.S. equities overseas is not coming from a migration of business away from the U.S., but from an increase in foreign capital flow across borders. In both London and Tokyo, the activity in U.S. stocks is dominated by foreign investors, not by U.S. investors seeking different markets.

In short, the game is still played here. Going forward, as foreign investment barriers get broken down, there will inevitably be an increase in foreign investment in U.S. stocks, but it is still very difficult to envision that the dominant trading will not stay in the home market. There are simply too many advantages for investors to operate in the U.S. Our exchanges are the most liquid, orderly and honest markets in the world. Our clearing mechanisms are far superior to their international counterparts. Further, geographic and time zone proximity to U.S. companies provides a better understanding and information flow for domestic investors in U.S. equities

Ignoring the flaws in the market will neither solve the markets' problems nor position ourselves for the future. By addressing the shortcomings that became evident in October, we will continue to provide leadership for the world's financial markets. The recommendations of the Task Force are not excessive or detrimental, but rather represent an effort to bring the regulation and oversight of our markets up to date with the new financial realities of the 1980's. The bottom line is that we have to address the ills of our own markets regardless of the regulatory situation overseas. On October 19, the stock market did not perform its most crucial function; providing meaningful prices for investors. That simple fact mandates the necessity of an upgrade of our financial market system.

4. We are encouraged to see the exchanges accept the concept of preplanned, pre-announced circuit breakers and by their willingness to experiment with different procedures such as the 50 point Dow Jones collar on the use of DOT for index arbitrage by the NYSE and the 15 point S&P price limits on the CME. However, we have several concerns about their ultimate efficiency. Foremost, they have been developed and implemented by each exchange with a view principally shaped by the concerns of their own members and without concern for the intermarket impact of any particular procedure. By not coordinating between the markets, some circuit breakers run the risk of disconnecting the marketplaces, an outcome we believe would destabilize all markets and increase volatility. Given the current market structure, we view the NYSE effort to cut off index arbitrage after a 50 point move as cutting off a vital link between the New York and Chicago markets. The events of October 19th and 20th make clear that severing this link destabilizes the one market system. Further, to the extent that the public has been sold these first efforts at circuit breakers as cure-alls for the markets' ills, we worry that their lack of results will backfire and further erode public confidence that the markets are orderly.

We believe that the lead in developing specific circuit breakers must be taken by the exchanges themselves. However, a number of guidelines should form the framework in which circuit breakers are developed.

(1) Circuit breakers must be coordinated across markets with a concern for their intermarket impact.

(2) The stock and futures markets should not be disconnected while both are still open.

(3) Consistent with their rationale, trading halts should be as brief as possible to least interfere with the free and open nature of our markets while providing a time out to think and act. Circuit breaker mechanisms must also provide coordinated restart procedures and effective information distribution procedures while trading is halted.

(4) Circuit breakers should be non-discretionary and predetermined so that they are a part of the exchanges' in-place operating framework.

(5) Circuit breakers should not be set at levels which cause them to be triggered frequently. They are not meant to be a part of the normal exchange operation, but to guard against a market meltdown.

Finally, to further respond to the questions that Senator Leahy has raised, I have enclosed an open letter written by the five former panel members of the Presidential Task Force on Market Mechanisms. The letter presents in greater detail our current position on the issues we raised in our report.

Nicholas F. Brady
James C. Cotting
Robert G. Kirby
John R. Opel
Howard M. Stein

Our study of the events of October 1987 revealed flaws in the mechanisms that govern our equity markets. While there has been much discussion of these weaknesses and limited progress, much more needs to be done. Subsequent stock market activity has shown that these flaws are still in place and must be addressed. In the current market environment, large numbers of individual and institutional investors have made it clear that they are dissatisfied with the equity markets as they exist today. Most noticeable is the fact that small shareholder volume in the stock market has declined 40% since October. The message is that investors will not re-enter the markets until measures to ensure an orderly investment environment are implemented.

Much of the debate surrounding reforms has concentrated on who should oversee the needed changes in the marketplace. The issue of who should provide oversight is minor, when compared with what should be done. Although the Fed should logically have a hand in critical parts of any solution, the concept of placing complete responsibility into the hands of one independent organization has proven to be a political powder keg that has drawn the focus of the debate away from more critical issues. However, what is most crucial is not who oversees the issues that need reform — there are a number of viable alternatives — but that we get to work on them. Self-interest and turf battles among the regulators and exchanges cannot be allowed to stand in the way of the necessary reform of a limited number of issues that cut across marketplaces.

On the issue of what should be reformed there is much more agreement. Of primary importance is the unification of the clearing process. There is widespread agreement among market participants that unified clearing would greatly reduce the risk and strain on our credit system. Unified clearing would include two equally important components: information and settlement. Improved information would better enable commercial banks to assess the exposure of their clients properly. The unification of margin calls and settlement timing which currently operate independently of demands in other marketplaces would alleviate potential liquidity problems.

Some progress has been made on the clearing issue. The payment of intraday margin out of as well as into the CME clearinghouse, the sharing of pay and collect information between the CME and CBOT and the start of a constructive dialogue in the industry, has served to move the issue forward. However, more needs to be done. Specifically, the netting of pays and collects, the sharing of information on hedged positions and cross-margining and cross-collateralization must all be coordinated across marketplaces.

The unification of clearing is obviously very complicated, but an effective mechanism that covers both the equity and derivative products markets must be found if the process is to work. At its best, discussion will necessarily involve the Fed, because of its flow of funds expertise, as well as the various segments of the industry such as market participants, the exchanges and the clearinghouses. The Fed, with its interest and expertise in credit extension and funds flow, is the natural sponsor, at least initially, of these discussions. When a mechanism for clearing and settlement is agreed upon, responsibility for ongoing oversight of the process can then be determined.

Clearing and credit were the flaws which came closest to damaging severely our financial system in October. Neither the inherent complexity of the solution, nor the turf concerns of the various exchanges and regulatory authorities should serve as a roadblock to its unification. Nor should the argument that the country survived October be used as a reason for inaction. Escaping a cataclysm by a whisker is not a prescription for the future health of our financial markets.

In some regards, margins serve different functions in the equity and derivative marketplaces. But in one sense, they have the same function - dictating the amount of leverage available to investors and, therefore, influencing the level of speculation. In the world of one market, it makes little sense to provide investors with different degrees of leverage depending on whether they enter through the stock or derivative door. For this reason, it is essential to harmonize the level of margins between stocks and derivatives.

Common sense tells us that harmonizing margins on all equity instruments will be easier if responsibility for setting all margin requirements is centralized in the same government agency. Certainly, the intermarket implications of margin levels are too important to allow them to be set by the SROs only from their own perspective, as is presently the case with futures margins. If we do not want to reinvent the wheel, the Fed, because it presently is responsible for margins on stocks and options, is the logical choice for setting margin requirements on all equity instruments.

Some of the futures exchanges, such as the CME and CBOT, have taken steps toward harmonizing the level of margins, but more still needs to be done. Once responsibility for setting margins is centralized, the responsible authority will have to determine the appropriate levels. If it is determined that margins should be raised, the cost would be offset by the cross-margining and cross-collateralization of positions that unified clearing would allow. Further, cross-margining would also permit a clarification of the distinction between speculator and hedger margin classification. A more meaningful definition will better enable the proper setting of margin levels.

We are encouraged to see the exchanges accept the concept of preplanned, pre-announced circuit breakers and by their willingness to experiment with different procedures such as the 50 point Dow Jones collar on the use of DOT for index arbitrage by the NYSE and the 15 point S&P price limits on the CME. However, we have several concerns about their ultimate efficiency. Foremost, they have been developed and implemented by each exchange with a view principally shaped by the concerns of their own members and without concern for the intermarket impact of any particular procedure. When we proposed the idea of circuit breakers as a basis for helping to maintain orderly markets, we did so in the context of our belief that we have a single equity market independent of geographic location or product proliferation. By not coordinating between the marketplaces, some circuit breakers run the risk of disconnecting the marketplaces, an outcome we believe would destabilize the market as a whole and increase volatility. Given the current market structure, we view the NYSE effort to cut off computerized index arbitrage after a 50 point move as cutting off a vital link between the New York and Chicago markets. The events of October 19 and 20 make clear that reducing index arbitrage can sever this link and destabilize the one market system. Further, to the extent that the public has been sold these first efforts at circuit breakers as cure-alls for the markets' ills, we worry that their lack of results will backfire and further erode public confidence that the markets are orderly.

We believe that the lead in developing specific circuit breakers must be taken by the exchanges themselves. However, a number of guidelines should form the framework in which circuit breakers are developed.

(1) Circuit breakers must be coordinated across markets with a concern for their intermarket impact.

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(3) Consistent with their rationale, trading halts should be as brief as possible to least interfere with the free and open nature of our markets while providing a time out to think and act. Circuit breaker mechanisms must also provide effective information distribution procedures while trading is halted and coordinated restart procedures.

(4) Circuit breakers should be non-discretionary and predetermined so that they are a part of the exchanges' in-place operating framework.

(5) Circuit breakers should not be set at levels which cause them to be triggered frequently. They are not meant to be a part of the normal exchange operation, but to guard against a market meltdown.

In terms of information systems, information on the customer behind each trade in the stock market must be available on a confidential basis to the responsible regulatory agencies in order to diagnose future crises and monitor trading practices such as frontrunning and insider trading. We are encouraged that the NYSE and the SEC appear to be working toward that goal.

These four issues, highlighted in the Task Force report, are still the issues most in need of attention. In other areas, we are encouraged by the steps that have been taken by the various exchanges to increase the operational capacity of their markets and the financial capacity of their market makers. Making the "highway broader" will make it less likely that we will again suffer the massive information and liquidity breakdown which marked the market's behavior last October. However, let us not fool ourselves. Merely increasing market capacity will not assure that a repeat of October will be averted. It is still necessary to deal with the intermarket issues we have come to acknowledge.

We should not be sidetracked by specious arguments. Much talk has been centered around whether increased regulation will force trading onto overseas markets. The equity markets may eventually reach the same degree of global trading as the currency and bond markets, but they are not global today. The dollar volume of the Dow 30 stocks that trade on the London Stock Exchange represents less than 1% of what is traded in these stocks on U.S. markets. Investors have a strong preference and incentive to trade securities on home markets. The U.S. markets are the most liquid, orderly and honest markets in the world. They provide both geographic and time proximity and more advanced clearing procedures for U.S. investors. Further, the markets in the leading financial centers around the world share an interest in adopting sensible and effective regulation. If the improvements in our market mechanisms increase confidence, we will continue to dominate the global market.

While some of the necessary reforms we have recommended can be effected through administrative action by various government agencies, some of the issues will inevitably require legislation. In our view, it would be a mistake to abandon the development of appropriate legislation, both to effect reforms directly and to keep the pressure on the private sector to continue to address these issues. No amount of talk will disguise the fact that the responsibility for margins cannot be moved without a law change or that unified clearing, like the unification of stock clearing in the 1970's, cannot be accomplished without legislation.

The Task Force's recommendations represent a reordering of existing legislation to address the new realities of the 1980's securities markets. We are not attempting to legislate against decline or interfere with the smooth functioning of the markets. The market will always seek its level ground; we are only trying to assure that it gets there safely.

The CHAIRMAN. Thank you very much, Senator Brady. I do accept the Commission's one market theory, but it is also accurate to say we have a linked global market for stocks and stock options and stock index futures and stock index options.

I would like to spend some time on what has happened since October. We had a report, and you probably have spent so much time testifying about the report you may not want to rehash it again.

I would like to focus on some of the things since then. But to begin with let me go to one question about October 19. Is it fair to say that the Commission concluded that the uncoordinated disconnection of the stock market from the derivative markets had a negative effect on the performance of both markets?

Mr. BRADY. I think the Commission's conclusion was that that was exactly the case. As you know, all markets have slope either up or down. Slope is usually greater on the downside, the sell side, and what the disconnection of these two markets and the general perception, among not only professionals but almost everybody in the financial community, that they were separate marketplaces, different geography, different towns, different parts of the United States, the perception that they were different markets and not the same market vastly increased the slope. And the task force really believes that if this had not been the case that you would not have had any kind of the break that we did have in October. So the answer to your question is yes.

The CHAIRMAN. Well, then would you conclude that index arbitrage, rather than being a culprit in the breakdown of the market mechanism, actually performs a function, a valuable function in keeping the markets reasonably aligned?

Mr. BRADY. Senator, that is exactly correct. Index arbitrage is, as you point out, the link between the two markets, the instrument by which these two separate market places act as one market.

The CHAIRMAN. Well, that leads next to some of the criticisms of the unilateral actions taken by the exchanges which could end up disconnecting the markets. Specifically the decisions by the futures markets to put on daily price limits and by the New York Stock Exchange to ban the use of the SuperDot System[1] for index arbitrage trades on any day when the Dow moves 50 points.

Now should they be criticized for that or is it important that predictable circuit breakers be developed even if done unilaterally without coordination among the exchanges?

Mr. BRADY. Well, I would not quite accept the word "criticism." I think that from the perspective of their own markets, these are very useful first steps because they define the outline of where coordinated circuit breakers ought to come. So the task force applauds these initial steps toward trying to limit the volatility in markets.

By the same token, to the extent, and I believe it is true so far, that these circuit breakers are arrived at from the perspective of one market, that is not the way this problem is going to get solved.

The way it is going to get solved is by the equity markets and the derivative markets hopefully sitting down somewhere in a room, get together, and try to come up with circuit breakers and certain other things such as margins that embrace the concept of one market. It will not do any good to do it separately because the forces in the market are too strong. It will happen again.

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[1] Designated Order Turnaround System, known as SuperDot.

The CHAIRMAN. Well, the kind of circuit breakers, then, you see now are helpful, but, to use your expression, they are simply a first step?

Mr. BRADY. Yes, they are very useful.

The CHAIRMAN. They have to be coordinated.

Mr. BRADY. I understand completely how they are put together and they are genuine, but they are not arrived at from the broad conclusion which I think nearly everybody has accepted that we have one market.

The CHAIRMAN. Let me ask another question. It seems basic to remember that you are the one with the expertise and most of us up here do not deal with this subject everyday. But if the Dow were to move down rapidly, cross the 50-point threshold, and people were told to refrain from arbitrage trading on the SuperDot, would that put greater sell pressure in the futures markets which could then send a signal to sell more stock in the stock markets? I mean, could you get that kind of a spiraling effect?

Mr. BRADY. Well, the evidence that we have derives from the 19th and 20th of October that when you—again, you have to remember looking backward hindsight is perfect—but when the New York Stock Exchange, or when, first of all, the DOT System became clogged, and then consequently was, in effect, shut down, what happened was you had an enormous discount appear between the Dow Jones in New York. I believe it was 1,700 points on the Dow Jones, and the implied Dow Jones average in Chicago which was then 1,400.

So you have two separate markets, one with the Dow Jones average at 17 and the other at 14. Well, obviously, all the buyers are going to go to the cheaper market which was the futures market and buy there, and all the sellers are going to go to the New York Stock Market. So what you have is a disconnect, and you have a spiral starting where the sellers all go to the higher market and drive it down. The buyers go to the lower market.

The CHAIRMAN. When you have those kinds of markets that are so different in their trading structures, is it possible to design a consistent circuit breaker that will work across the markets?

Mr. BRADY. Senator, the task force did not contemplate that they should be identical. I think the thinking was that the commodities markets have always dealt in limits on commodities. If wheat goes off 6 cents, then it shuts down. That is fine, and if that is the kind of a system that the futures markets arrived at, that is OK.

By the same token, the New York Stock Exchange has developed a system of trading halts where they simply get an imbalance of orders, and they stop trading in the stock for awhile. These should be coordinated. The task force did not have time to say exactly how, but it seems to us that those two different kinds of circuit breakers should be arrived at in one market in conjunction with the other.

And you should not shut down one market unless—I think it is the task force's opinion that the SuperDot System should not be shut down while the Chicago's market is open. If they are going to shut down, it should be done simultaneously.

The **Chairman**. To develop those kinds of circuit breakers, then you would have to get a lot of cooperation not only among the regulators but among the exchanges themselves; would you not?

Mr. **Brady**. I think that is right. And if I may, the task force did not contemplate that you were going to have circuit breakers that shut down things permanently. What you are talking about here is putting a stop on a technological market that operates faster than the mind can think.

Stop it now and put a time out and let people do a little thinking. It does not mean you are going to shut down the market for the whole day. You are certainly not talking about taking the football and going home like they did in the Hong Kong market where they shut it for a month.

You are just trying to give people a chance to collect themselves as this enormously fast-acting, technological, electronic market operates.

The **Chairman**. Since I sent around my draft of some legislation, I have had a lot of private conversations and have also seen press accounts, which tell me that there has been some progress in getting the stock and the futures exchanges to start talking to one another perhaps more than they have in the past. What kind of progress do you see there? What do you hear?

More specifically, do the exchanges seem to be moving toward the kind of cooperation that the events of last October would seem to indicate as being useful and effective?

Mr. **Brady**. I think that very useful first steps have been taken. Again, I have to repeat, Senator, that I do not think you are going to have a satisfactory solution until these two markets and their regulators get together and try and come up with a comprehensive solution.

Solutions that come from the perspective of only one market ultimately will not work. So I think that people are working hard on it. Nothing would make it happen faster than—I am not hoping that it happens or predicting—but if you get another crack in the market, you will see a lot of progress. So it makes sense for us now to do this while we have relative calm.

The **Chairman**. Fix the roof when it is not raining?

Mr. **Brady**. I think so.

The **Chairman**. There was some criticism leveled in the press against the futures industry and by implication the CFTC as being the chief culprit in the market break. I do not think anybody who reads the task force report would be drawn to that conclusion. I certainly was not. But let me ask you a couple of specific questions.

Do you think there was a failure of intramarket regulation by the CFTC which in any way caused the market break in October?

Mr. **Brady**. No. We did not come to that conclusion, and I do not think it is useful to point backward, Senator. I really do not. I think that the one unassailable conclusion that has come out of the events of October is that people did not realize we had one market.

I know most of the top financial guys in New York, and I have to be honest with you, I do not think there was any clear understanding in their minds that this was the case. So we were not looking backward. We were saying that here is a new fact of life. You have to, as I know you understand, realize that the futures markets started around 1982. This is a very recent and fast-developing phenomenon. It is just something—it is a change in life and the way we do business. So we were not looking backward. We were saying here is the way to fix it in the future.

The CHAIRMAN. The reason I ask is that obviously this committee has the jurisdiction over the CFTC. Would you say from an intramarket standpoint that the CFTC had pretty good information systems in place? I am thinking of their audit trail, their large trader reports, things like that?

Mr. BRADY. Well, I think if you include with the CFTC the Chicago CME, the CBOT, and the CBOE, the answer is yes. They had good information systems, superior information systems.

The CHAIRMAN. What about on the stock side? What about auditing there?

Mr. BRADY. I would say that the information systems on the stock side were not as good as the ones in Chicago.

The CHAIRMAN. Have there been improvements in the stock market information systems?

Mr. BRADY. Sorry, Senator?

The CHAIRMAN. Are we seeing now, improvements since then in the stock market systems?

Mr. BRADY. I think that really, you know, one of the problems with working on commissions that when they shut, they shut. And we have not monitored what the situation is since that time. Joel, do you have?

Mr. COHEN. No.

The CHAIRMAN. Three members of the SEC including the Chairman have proposed that regulation of the stock index futures be transferred to the SEC. Do you favor that proposal?

Mr. BRADY. No. But I can see arguments on both sides. I mean one of the things that accounts for the fact that we have one market is that equities and equity-linked products, by their very name, obviously, are closely connected.

Perhaps if we were going to start all over again, you might do it differently. But there is an in-place machinery, political horsepower, and different committees in the Senate and House which regulate stocks and futures. And I see no real point in going backward at this particular point in time.

I would say that what we want to do is get those markets and futures indexes and the basic equities working together by the action of pressure that you and others are putting on them. But I think it would be counterproductive to try and move at this point.

The CHAIRMAN. I am concerned, not just about intermarket issues, but also the kinds of intramarket regulations each exchange sets up, one audit trail for the index pits, another for the bond pits, different standards for dual trading and so on. I could see some real problems in there.

Mr. BRADY. Senator, if I may interject?

The CHAIRMAN. Sure.

Mr. BRADY. This is not an implied criticism of the SEC in any sense. They are trying to do their job as they see it. So I can see from their point of view how it might make sense. But as a political fact of life it is just not going to happen.

The **Chairman**. Well, this question leads into the next one. I have sent you and the SEC and the CFTC and a number of others—Secretary Baker, Senator Howard Baker and others—a proposal, a draft bill. And I emphasized when I sent it out that it was a draft and that I wanted to get some comments. The bill sets up a Coordinating Council made up of the Chairman of the SEC, the CFTC, the Federal Reserve Board, and the Secretary of the Treasury.

We chatted about it just briefly on the phone. You had not had a chance yet to see it or think about it. Have you had a chance to think about it at all since then?

Mr. **Brady**. About the establishment of the committee?

The **Chairman**. Yes. The Coordinating Council.

Mr. **Brady**. Yes. Well, Senator, I guess maybe I will die a little hard on this point, but in my opinion it would be more effective to pick one person, and the task force that—I say one person, I mean one organization—to mediate these intermarket concerns because I remember quite well the days of October 19 and 20, the confusion that existed at that point in time, and it seemed to me you needed sort of one person to act and act quickly.

And we chose the Fed, and when we chose the Fed, we were not thinking of one man or one person. You are thinking about all of the machinery and expertise that goes into the Federal Reserve System to do that job.

Again, going back to the fact of life that the political process is important and in the final analysis determinative, then I think if it is politically unsustainable to pick one organization, then the idea that you have come forward to bridge the political process is a good one.

The **Chairman**. Aside from the political question of picking one agency, is there a problem with picking just the Fed in particular on account of necessary expertise? Does the Fed have inherent the kind of expertise for these various markets?

Mr. **Brady**. Well, I think when you get to writing the final words in a report, you have to write something, and maybe we wrote it in too black and white a fashion. Senator, the thing that if you pick one of the four things that we suggested that should be fixed that is most important, one stands out. And that is the fact that we ought to have one clearing and settlement system.

It makes absolutely no sense to have three exchanges in Chicago, each with their own clearinghouses, and one in New York, and none of those four settling systems really knowing what is going on inside the other one.

It was very dangerous. The Fed had to come in and supply an enormous amount of credit to the system. Nobody really had any idea among those four clearing systems what was going on. So the one thing that we should have is a system whereby that can take place. We have it for the commercial banking system.

We ought to have it for the investment banking system. All of that machinery is in place inside the Fed now. It just seemed wasteful and counterproductive to put it somewhere else. So you start with that conclusion: that your settlement system ought to be done within the Fed, and the machinery is all there. So why invent something else?

With regard to margins which is a very sensitive subject, the margins for the stocks are already inside the Fed, and it is a little-known fact that the margins for options are already inside the Fed. So out of a sense of orderliness, we said why not put the margin for the commodities markets inside there?

So with those two things, we felt quite strongly about. With regard to circuit breakers, I see no reason why they cannot be modulated and arrived at by agreement among the industry, on the one hand by the CFTC, and on the other hand with the SEC. So that would be kind of a little bit out to the side with the Fed maybe in a overseer's position.

The one thing, again, that I think is important that we get at right away is the production of some information that will not allow us to be in the dark should this happen again. So we ought to have better information, and it ought to happen quickly.

Now this has been criticized. People have said it is like publishing people's income tax returns in the newspapers. That is silly. What we were suggesting was information could exist, again with regard to the futures market, could exist right inside the CFTC. The same information with regard to the equity markets could be inside the SEC. It could be privileged information which each of those two regulatory authorities keep to themselves.

But it ought to be there when the lightning hits.

The CHAIRMAN. Last week I was giving a speech to the futures industry, and I asked them to accept your recommendation. I thought I was going a little bit into the lion's den doing this. I asked them to accept your recommendation that initial futures margin be comparable or consistent with professional stock margins.

And one of the things I heard back—actually I heard back on a number of things for the next couple of days. [Laughter.]

But, one of the responses I heard was that margins had already been raised for stock index futures. Also, given the mark-to-the-market system in the futures market versus a 5-day settlement in the stocks, futures, margins probably were consistent with professional margins in the stock market. I am still kind of digesting that one. How do you feel about that?

Mr. BRADY. I am sorry. I did not——

The CHAIRMAN. Well, basically they were saying that the margins really are consistent. In futures, they say that margins have already been raised for the stock index futures. And then they have the mark-to-the-markets system in the futures market, whereas you have a system of a 5-day settlement in the stock market. And when you consider their factor, they argue the margins probably are consistent already between the futures and stock markets.

Do you agree with that?

Mr. BRADY. Well, I think that is a difference, but I do not think it is enough of an argument to have the disparity that we had before the October 19–20 break. Since that time, the futures market has increased their margins, but I still think that the fundamental fact is not the difference in closing days between 1 day and 5.

The fundamental fact is that these products are very closely linked by their nature, by their basic terms, and the margins ought to be closer.

The CHAIRMAN. Let me kind of flip it the other way though. Is there any reason why they have to have a 5-day settlement period in the stock market? I mean, with technologies today, computers and everything else, electronic transfer of funds, could they do it on a 1-day basis?

Mr. BRADY. I am going to ask Joel Cohen to answer that question who has studied that part of our report much more closely than I have.

The CHAIRMAN. I have not raised that question in New York lately.

Mr. COHEN. I think it would be a little hard for them to go to a 1-day settlement, but I think they could shorten up the 5-day settlement significantly. I think it would take a lot of time to get to 1 day.

The CHAIRMAN. Just so we can have that for the record, why is it possible to have the 1-day settlement system on the futures market while it requires 5 days to settle trades on the stock markets?

Mr. COHEN. Well, technically in the futures market all they are doing everyday is marking positions to market. They are not closing out contract rights.

The CHAIRMAN. I see.

Mr. COHEN. Or transferring ownership of securities which is what you are doing within the 5 days. You are actually paying and transferring the securities. And it is the securities transfer part of it that takes the great bulk of the time.

The CHAIRMAN. Could that be cut down?

Mr. COHEN. I think they have said that they can cut it down, but not yet to 1 day. I mean the people actually process the securities transfers. Some of them, I think, are compared the next day and some on what they call T plus 2 and T plus 3 which is the trade date plus 2 days, the trade date plus 3 days.

The CHAIRMAN. I realize this is really taking a ballpark figure, but would it be realistic at least to look at proposals for a 3-day settlement? That would be T plus 2?

Mr. COHEN. Well, part of that relates to the task force recommendation on the whole clearing and settlement mechanism. If you were to have a unified clearing and settlement procedure between the futures market and the stock market, you would obviously have to move or think about moving the dates on which transactions are settled closer together.

And it may be that you would have to compress the 5 days to 2 or 3 days, and maybe concomitantly increase the 1 day that is now where the contracts are marked to market on a daily basis maybe to 2 days to get those time periods together because part of the problem that happened during the October 19 and 20 was the great liquidity crunch was faced first in the futures market because they have to settle up the next day. Whereas the stock market people were concerned, well, will I have enough liquidity in 5 days? So the timing differences between the markets are significant.

The CHAIRMAN. There is no easy answer when we try to talk about coordinating, is there?

Mr. COHEN. No.

The CHAIRMAN. I notice that the White House has now circulated a proposal markedly similar to the one that I sent out a couple of weeks ago. They would, by Executive order, create this Coordinating Council, making it up of the same four that I had talked about: SEC, CFTC, Fed and the Secretary of the Treasury.

Now the draft I saw from the White House—and I am just looking at my notes here—said that the group was to study these issues for 90 days and then make proposals for either legislative or regulatory changes. Now that is a bit cautious. October 19 was the market break. And your report came out on——

Mr. BRADY. January 8.

The CHAIRMAN. January 8. Nobody wants to rush in, but do you feel comfortable with this approach that the White House is taking? Do they really need another 90 days to consider these issues?

Mr. BRADY. Well, I would hope that they could do it faster than 90 days, Senator Leahy. Obviously, from their point of view, they want to take that amount of time. I think my understanding is there is a lot of varied opinion in this town as to how this problem ought to be solved, and they want to try to collect all of that opinion so they can work with the Senate and the House to come up with something that will work.

Maybe start off by trying to do it administratively and see where the gaps in the conclusion are. What would have to be left to be done by changing the laws? So I think that is a useful process. I would hope that it could be done in less than 90 days.

The CHAIRMAN. Just to clarify, on questions of uniform clearing and cross marging, are these ideas ones you were talking about in the long run, or do you see them as possible in the short run?

Mr. BRADY. Well, I think it is imperative, to use a strong word, that we get at it right away. I mean the task force investigation quite clearly showed that what nearly broke was the financial system in this country, the settlement and clearing system. And we should not take that kind of a chance.

One of the task force members said, and I think it is a good analogy, we should take no consolation that we were within a quarter inch of being hit by the super chief. And I think that is the point. If there is any one thing we ought to get at and fix right away it is the settlement and clearing system.

The CHAIRMAN. You do not see what happened in October as a total aberration that could never happen again?

Mr. BRADY. Absolutely not. I am convinced that unless we get at it and fix some of these things that we are taking a chance we do not need to take. Why take a chance we do not need to take?

The CHAIRMAN. And the things are fixable?

Mr. BRADY. Absolutely.

The CHAIRMAN. As you know, a number of other matters have been going on this morning. Senator Lugar, who is the ranking member on this committee, is also the senior member on Foreign Relations, and he has been detained, as well we can imagine.

I have no further questions of my own. I have also just been told that the 10:10 vote has been canceled. It was one of those votes referred to by some of us as a bed check vote. You remember those days.

Mr. **Brady**. I understand.

The **Chairman**. And I am delighted it has because it saves us some time. Do either one of you have anything further that you would like to add about what we have discussed here?

Mr. **Brady**. No, Senator Leahy, we thank you for the opportunity to express the task force view, and it is always a pleasure to see you again.

The **Chairman**. Well, it is good to see you, and I thank you very much for coming down. I know you have had to rearrange your schedule, and I also appreciate all the time that your staff has spent with mine. It has been very, very helpful. We will stand in recess for just 5 minutes. Thank you.

Mr. **Brady**. Thank you.

[Recess.]

The **Chairman**. The committee will come to order. If we could reconvene, we will have as our next witness Dr. Gramm, the Chairman of the Commodity Futures Trading Commission, David Ruder, the Chairman of the U.S. Securities and Exchange Commission, and Kalo Hineman, Commissioner of the Commodity Futures Trading Commission. Would you all come forward, please. I might say that I appreciate very much the fact that both the CFTC and the SEC are here. It not only makes our lives easier in coordinating this testimony, but hopefully it will also make yours easier as well.

We will start off with Dr. Gramm and then go to Mr. Ruder. I would suggest during the question time, you should each feel free to interject with either agreement or disagreement, as the case may be. I am not going to keep the strictest rules on that. I hope you have gathered from the discussions with Senator Brady that this committee is very concerned with this issue. We want to learn. We do not come here with preconceived, or at least not large preconceived notions.

And so you are welcome to educate us now. Dr. Gramm, you can start with the education.

STATEMENT OF DR. WENDY L. GRAMM, CHAIRMAN, COMMODITY FUTURES TRADING COMMISSION, ACCOMPANIED BY KALO A. HINEMAN, COMMISSIONER, COMMODITY FUTURES TRADING COMMISSION, WASHINGTON, DC

Dr. **Gramm**. Thank you, Mr. Chairman. As you know, I have a rather lengthy written testimony, but I would also like to have the report that Commissioner Hineman made before the Committee on Banking, Housing, and Urban Affairs entered into the record because it has a lot of explanation of what was done during the period of October 19.[1] Also, we do have some four reports that have been written on the events of October 19. I will not ask that all of them be put into the record, but they will be submitted for inclusion in the committee file of this hearing.

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[1] See p. 55 for the report of Kalo A. Hineman, Acting Chairman, Commodity Futures Trading Commission, on Agency and Self-Regulatory Action During the Period Between October 19, 1987 and February 22, 1988.

The CHAIRMAN. The reports will be noted as being available in the committee file, and your whole statement, of course, will be made a part of the record. We welcome you to summarize any way you like.

Dr. GRAMM. I would like to summarize just very briefly what the CFTC has done in response to the October break, and I would like to characterize what was done immediately following the break. There was a lot of information gathering, not only to assess the systems and the organizations and the programs in place to see how they actually operated, and whether or not improvements could be made, but also to assess information systems to see whether or not these systems are sufficient for the monitoring of market, as well as financial conditions of the participants.

Then I will summarize very briefly what actions have been taken since that October market break period in response to this initial collection of information and in response to a lot of the recommendations that we have been making.

First of all, immediately after the October break period, we did have the large trader reporting system as well as the audit trail system. So that did provide a very good foundation of information. In addition, we had a special call using our Commission rules in order to get additional information to assess not only the financial condition of the market participants at the time but also to determine the ability of the clearing organizations to monitor the financial conditions of their members.

We reviewed the operations of the clearing organizations and the systems for collection and payment of margins. We reviewed sources to get information about customer complaints. We reviewed exchange programs and asked the exchanges themselves to review their own programs, especially with regard to evaluating the adequacy of margin requirements, to ensure whether or not they have the capacity to monitor, as well as maintain compliance with the capital requirements of the members, and also to determine whether or not extra protections were needed under periods of extreme stress where there is extreme price volatility.

We also, again, assessed existing information systems to determine whether or not these systems can be improved to enhance monitoring capability. We found that there were areas for improvement, in addition to the ones mentioned above, with respect to coordination and communication, not only among the regulators, but among the exchanges as well.

There has been since October 19, in my view, significant action in response to many of the recommendations that the CFTC has made, and let me go through them. These activities can be categorized. You can think of them as the activities and the action in response to enhancing the financial integrity of the system to assure that the clearing organizations and the clearing members have the financial capacity and capability to withstand severe price volatility.

I might note that during that period there were no clearing member or clearing organization or futures commission merchant defaults due to futures problems, and no futures customer lost money due to default of an FCM or clearing organization. Nonetheless, there has been activity to further strengthen the ability of the members and the clearing organizations to enhance the financial safeguards.

For example, the CFTC had recommended even before October, a sharing of the pay and collect information, and it is indeed being implemented now. This is especially important during periods of extreme price volatility.

It not only helps with the financial surveillance, but it allows a sharing of information concerning the actual financial position of members and could prevent some of the gridlock and concerns that were raised during the October period. The status right now is that all futures clearing organizations are sharing the pay and collect information, and in the near future options premium data from the Options Clearing Corporation will be included in the system.

And under discussion right now is the fact that even though the margin system on the security side is an entirely different system, clearing organizations are discussing ways that securities data from the National Security Clearing Corporation might also somehow be included in this information sharing network. I think that is a very important step forward and it is still ongoing.

In addition, there has been clarification of contracts, contract relations and obligations between clearing organizations and the banks, basically to facilitate the flow of margin payments.

With respect to margin during this period of October, billions of dollars were collected for margins in the futures area. And while billions of dollars were collected, and margins were increased substantially during this period, still the exchanges have gone back since October and have increased their initial margins and made these increases permanent.

This provides some additional security, particularly in extreme price volatility. But as you know, in the futures market margins, indeed, can be collected intraday, during the day, as well. And when margins are raised on an intraday basis, they have to be paid to the clearing organization within an hour.

The Chicago Mercantile Exchange, which has 95 percent of the stock index futures contracts, has also increased its capital requirements for its clearinghouse members. So there are a number of actions that have been undertaken, particularly by the CME, to increase financial security during periods of extreme price volatility, such as increasing the security deposit that clearing members have to pay to the clearing organization, the CME clearinghouse, to assure that if a clearing member has an account that is a subsidiary of another company, the parent company also has financial obligations if that member gets into financial trouble.

Those are the kinds of activities that really enhance the financial safety of the whole futures system. In addition, there has been some activity to improve information systems, not only to get better information on markets and how they are working, but also to get better information about the financial condition of the members.

Now this is important during periods of price volatility because there is a lot of uncertainty out there, and the CFTC and the exchanges need to have the ability to monitor members and be able to identify ones that may be getting into trouble, that have positions that may be concentrated and may create a risk, not only for their own customers, but also for the clearing organization.

As you know, we do have a very good information system already, but in addition, CME has undertaken to strengthen the risk management audit procedures, expanding some financial information collection that they are doing for their large traders.

The CFTC is also looking at these information bases to see whether or not the systems can be improved. While some improvements have already been made, we are looking at further improvements with respect to the different data systems to be able to track more carefully exactly what is happening at each period in time.

Obviously, the sharing of the pay and collect information that I described earlier is part of this effort and would help tremendously during a period of price volatility as well.

And we are still assessing other ways of improving the information systems in order to be able to track activity more carefully. In terms of emergency plans and coordination, a lot of this activity that I have already described allows the systems to work better during a period of extreme price volatility.

Our philosophy is that the market should go to its appropriate level as dictated by supply and demand without confusion, in an orderly fashion. What we are doing is to ensure that the capacity is available for orderly movement. However, in periods of extreme price volatility, there may be a need for some kind of a circuit breaker mechanism that may kick in if the systems become overloaded.

At least on the futures side, there are price limits that have been put on by the CME and all the exchanges except the New York Futures Exchange. Actually, the New York Futures Exchange had an emergency price limit, but they have not made it permanent. But that is a very small portion of the stock index futures. The major portion of the stock index futures trade on the CME, and they have new price limits that roughly correspond to a 100 or 120 point change on the Dow.

With respect to coordination and communication, that is an area where I believe we can have some improvement. I would point out that there was good coordination going on at the time. I believe Chairman Greenspan said, when Chairman Ruder and Chairman Greenspan and I met, that he thought that communication was good. He was able to get information. Obviously it can be improved, and we are working in a lot of areas to improve communication not only among regulators—and I have in my prepared testimony a score of meetings that have occurred and continue to occur as late as yesterday with Chairman Ruder, Commissioner Hineman and myself—but also with the self-regulatory organizations. Yesterday the CFTC hosted a meeting with SEC, CFTC, and the exchanges to discuss lines of communication and coordination.

This is ongoing. It is not the first meeting that has been held. There have been a number of them, and my view is that communication and coordination is something that you just do not turn on when an emergency occurs.

It is something that should be going on and indeed has been going on at the staff level and at our level for some period of time, and I think it is important that effort be promoted. We have, I think, come quite a ways as a result of a number of these meetings.

I think there is more that can be done, but I think we have come pretty far along, as evidenced by communications among the regulators and exchanges—not only stock exchanges talking with themselves, the stock exchange and futures exchanges talking, just as Senator Brady had suggested.

There is a lot of progress there. There is more that can be done, and indeed will be ongoing and I am sure Chairman Ruder agrees with me that it is something we both will promote.

We have taken a lot of actions. There is still some more that is being done, and we are continuing to assess and ensure that the financial integrity of the system is strong and can withstand pressures. We are beginning to work toward the coordinated emergency circuit breakers. On the futures side, there is more coordination that needs to be done with respect to the stock exchange side, but again, these are first steps.

On the information systems, there are a lot of improvements that are being made, and we are looking at even further improvements in that area.

But let me stop and turn to Chairman Ruder.

[The prepared statement of Dr. Gramm and the report of Mr. Hineman and responses to questions submitted by Senators Leahy and Daschle follow:]

TESTIMONY OF
DR. WENDY L. GRAMM
CHAIRMAN
COMMODITY FUTURES TRADING COMMISSION
before the
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY
UNITED STATES SENATE
March 17, 1988

Mr. Chairman and Members of the Committee:

Thank you for the opportunity you have afforded the Commission to participate in the Committee's examination of the events in the securities markets during October 1987. The Commission has previously furnished to the Committee the written testimony of Acting Chairman Kalo A. Hineman of February 3, 1988 before the Senate Banking, Housing, and Urban Affairs Committee reflecting the CFTC's historical record of events up to that date. My testimony will update that testimony and report to the Committee with respect to three subject areas.

1. A summary of the regulatory and self-regulatory actions taken by the CFTC and the futures exchanges in response to concerns arising out of the October market events. These actions strengthen those systems which protect the financial integrity of futures markets, including during periods of extreme price volatility, improve financial information sharing, upgrade information systems, and implement circuit breaker mechanisms to cushion the market impact of drastic price changes. This section also includes a description of the CFTC's broad emergency powers which underlie the basic regulatory structure for futures and commodity option markets.
2. A report on the substantial ongoing interagency and interexchange coordination and contingency planning actions, including international coordination efforts, that have taken place since October 19.
3. Clarification of certain issues concerning program trading, differential leverage between stocks and futures, and frontrunning. All of these topics have been the subject of confusing and sometimes contradictory press reports and testimony in other hearings.

REGULATORY AND SELF-REGULATORY CHANGES SINCE OCTOBER 19

Actions by Exchanges--Financial Integrity of Futures Markets

Since October 19, 1987, the futures exchanges have taken a number of actions that are responsive to recommendations made by the Commission's staff in the Follow-up Report on Financial Oversight of Stock Index Futures Markets During October 1987 (Financial Follow-up Report) and in the Final Report on Stock Index Futures and Cash Market Activity During October 1987 (Final Report). These actions should enhance the financial security of the futures markets, particularly during periods of substantial volatility, and should advance related objectives, such as increasing the efficiency of and coordination among clearing and settlement facilities that are recommended in other reports on the stock market events of October 1987. These actions include the following:

o Margin pay and collect data-sharing system. In accordance with previous CFTC staff recommendations, as of October 21, 1987, all futures exchanges and clearing organizations had entered into a formal agreement for the routine, electronic exchange of margin pay and collect data with respect to dual and multiple clearing members. Such a system should enhance self-regulatory and CFTC financial surveillance over participants in multiple futures markets. Following the October market break, CFTC staff recommended implementation of this system on a priority basis. The system is currently expected to be fully implemented by the end of March 1988 for all futures clearing organizations and is expected to include option premium data from the Options Clearing Corporation (OCC) in the near future. In addition, also in accordance with Commission staff recommendations, discussions are underway concerning the inclusion of securities data from the National Securities Clearing Corporation in this system.

o Clarification of contractual relationships between clearing organizations and clearing banks. The CFTC staff's Financial Follow-up Report recommended that the contractual relationships between clearing organizations and their settlement banks be clarified. To the extent that settlement bank confirmations of variation margin payments are recognized to be final and irrevocable, the flow of variation funds through the clearing system should be facilitated, as the clearing system operates principally as a conduit for the transfer of funds from clearing firms making net variation payments to clearing firms receiving net variation collects. The Chicago Mercantile Exchange (CME) Clearing House, the Chicago Board of Trade Clearing Corporation (BOTCC) and the OCC are currently reviewing a draft agreement designed to afford additional clarity and standardization in clearing organization and settlement bank contractual relationships.

o Enhanced margin security against risks of extreme volatility. The CFTC's staff review indicated that no margin defaults occurred at the clearing level, that a low level of customer defaults occurred at the commodity broker or future commission merchant (FCM) level, and that margin levels established by the futures self-regulatory organizations (SROs) were sufficient for financial integrity purposes during the week of October 19-23. Nonetheless, CFTC staff recommended that the futures SROs review the adequacy of margin levels and consider measures to increase the security afforded by the margin system against aberrant price spikes and extreme volatility.

Responsive SRO actions include:

-- CME margins on the Standard & Poor's 500 futures contract have been increased to $18,000 initial margin ($10,000 maintenance) for speculative positions and to $10,000 (initial and maintenance) for hedge positions. The CME also has established a policy of resetting its initial speculative margins for stock index futures to approximately 15 percent of the value of the contract on a quarterly basis. Chicago Board of Trade (CBT) margins on the Major Market Index (MMI) futures contract have also been increased to $15,000 initial margin ($10,000 maintenance) for speculative positions and to $10,000 (initial and maintenance) for hedge positions.

-- The CME Clearing House also has taken measures to enhance its own liquidity. The Clearing House is in the process of acquiring a $250,000,000 line of credit to be used in the event of a clearing firm's default. The CME also has adopted a rule change to increase clearing members' security deposits (which are standing security that is in addition to margin deposits). The rule is designed to increase the available pool of security deposits more than ten-fold from approximately $4,000,000 to $40,000,000. The CME also plans to adopt rules requiring the parent company of a CME clearing member to guarantee losses on non-customer positions carried by such clearing member.

-- The CME has proposed a rule change to impose additional financial requirements on clearing member firms maintaining 16 or more branch offices or a combination of 32 or more branch offices and guaranteed introducing brokers.

-- Also in response to CFTC staff recommendations following the market break, the CME has submitted a rule proposal designed to establish a margin system for option positions that identifies more effectively positions that carry greater risk and that, therefore, should incur higher margins. This new option margin system, which was submitted in early February, is currently under review by the Commission. The BOTCC also has taken action with regard to option margins, increasing the amount of margin collected for deep out-of-the-money options.

o Increased use of intra-day margin calls. The CFTC's Financial Follow-up Report reflects that the futures margin system functioned effectively as a protection of the financial integrity of futures transactions during the week of October 19-23. Nonetheless, the Commission staff's analysis indicated that the potential burdens imposed upon the clearance and settlement system by the necessity to effect variation margin transfers of the magnitude called for during the week of October 19-23 warrants consideration of the use of intra-day margin calls on a routine or more frequent basis by all clearing organizations. Previously, only the BOTCC routinely made intra-day margin calls.

The CME has recently adopted a rule amendment to facilitate implementation of a new policy of its Board of Governors to make intra-day margin calls on a daily basis, when a specified dollar threshold is crossed, and to facilitate the flow of funds by paying out gains as well as collecting payments for losses on an intra-day basis. New procedures promulgated by the CME for the collection and payment of variation margin on an intra-day basis provide for issuance of intra-day calls for settlement variation to any clearing member owing more than $500,000 and for intra-day payments of up to 80 percent of gains when $1,000,000 or more is owed a clearing member. The CME also has stated its intention to coordinate the timing of intra-day margin calls with other clearing organizations in order to alleviate potential burdens on clearing member firms that have related positions in different markets. The CME also has adopted a rule amendment to provide greater flexibility to the clearing organization with regard to the timing of daily settlement payments.

The BOTCC, which had a pre-existing policy of making routine intra-day margin calls based on the open interest at the previous day's close, adopted additional margin collection procedures following the October market events to enhance its margin collection process. Under these new procedures, the previous evening's trades and all trades submitted to the BOTCC by approximately 1:30 p.m. each day are matched, and appropriate variation margins are collected by 2:30 p.m. each day on all open positions as of 2:00 p.m. In addition, the BOTCC established procedures to ensure that afternoon variation margin payments are paid only to a clearing member if the clearing member's required margins, based on intra-day positions, are sufficient to cover the newly calculated risk of those positions.

o Enhanced clearing and settlement bank financial data. In accordance with Commission staff recommendations, the CME Clearing House has augmented its risk management audit procedures, expanded the range of "large-trader" financial information that will be available on a short-term basis, and will be requiring additional intra-day mark-to-market calculations to assess the impact of price moves on positions held by clearing members. The CME also has scheduled a round-table discussion in April 1988 with representatives of the BOTCC, OCC, Federal Reserve Bank of Chicago, and the four clearing banks used by the BOTCC and the CME Clearing House to address subjects including CME emergency plans and procedures, the appropriateness of expanding Fedwire hours, improving coordination among the exchanges and settlement banks, and revisions to agreements between clearing organizations and settlement banks. Some of these settlement refinements were also suggested for further consideration by the CFTC staff in the Financial Follow-up Report and the Final Report.

o Clearing member capital. The CME has stated that it intends to enhance the security of its Clearing House by establishing additional minimum capital prerequisites for membership in the CME Clearing House.

Actions by Exchanges--Price Limits

One of the circuit breakers discussed most frequently since the events of mid-October is daily price fluctuation limits. Generally, futures price limits prohibit trading at prices a specified level above or below the previous day's settlement price. As discussed in more detail in the CFTC's Final Report (pp. 182-86), proponents of limits contend that they prevent the markets from overreacting during periods of uncertainty and constrain the daily financial exposure of FCMs and clearing members. The disadvantage of such limits is that, when they are reached and markets are prevented from finding the market clearing price, large amounts of orders can remain unexecuted or be diverted to other markets. In addition, limits impede the price discovery process of futures markets and can result in intermarket distortions when comparable limits do not exist for related markets.

Although price limits were at one time uniformly in effect for every actively traded futures contract, in recent years there has been a tendency toward relaxation or removal of price limits in many futures markets. On October 19, 1987, there were no price limits in effect for any actively traded stock index futures contract. By October 23, however, the CME, New York Futures Exchange (NYFE), and Kansas City Board of Trade (KCBT), by emergency actions, had put into effect price fluctuation limits for their actively traded stock index contracts. The fourth exchange with stock index futures trading activity, the CBT, did not implement limits on an emergency basis. Subsequently, the Commission approved permanent limits for the CBT's, CME's, and KCBT's actively traded stock index contracts. More recently both the CME and CBT proposed further rule amendments that were approved by the Commission in February 1988. A summary of the current price limit rules, by exchange, follows:

Chicago Mercantile Exchange. The CME's daily price fluctuation limits for the S&P 500 futures contract are contingent upon the level of futures prices as determined by the settlement price of the near-by future at the end of the prior calendar month as follows:

Lead Month Settlement Price on Last Business Day of the Preceding Month	Daily Futures Price Limit for the Current Calendar Month
(index points)	
0.00 up to 275.00	15.00
275.05 to 325.00	20.00
325.05 and above	25.00

The CME's S&P 500 futures rules also provide for a narrower opening period price limit of 5.00 index points, above or below the previous day's settlement price, which applies during the first ten minutes of trading. When any of the aforementioned price limits for the S&P 500 futures contract are in effect, the CME rules provide for the suspension of trading in the option on the S&P 500 future as well. 1/

Chicago Board of Trade. The rules of the CBT regarding the MMI futures contract specify a daily price fluctuation limit of 20 points above or below the previous day's settlement price. This limit is expanded to 30 points the next day in the event that three or more contract months close at the limit. There is no option on the MMI traded on the CBT.

Kansas City Board of Trade. The rules of the KCBT for the Value Line Average (VLA) futures contract specify a daily price

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1/ The Commission is currently reviewing additional rule amendments proposed by the CME that would refine these opening period price limits and redefine the lead month. The proposed amendments generally would provide that the opening period price limit would cease to be in effect if the futures contract trades off the limit prior to the end of the first ten minutes of trading. Further, there would be a two-minute trading halt if the futures contract remains bid or offered at the five-point limit at the end of the first ten minutes of trading. Under the proposal, the lead month would be the most actively traded future.

fluctuation limit of 35 points. This limit also contains an expansion factor to 50 points after two consecutive daily price limit moves in the same direction in the lead month. The option on the VLA future is not actively traded.

New York Futures Exchange. The emergency action taken by NYFE in mid-October regarding price limits expired in January, and no permanent rules have been implemented to replace those limits for the NYSE Composite futures contract. Currently, the open interest in this contract, although second to the CME's S&P 500 futures contract, accounts for less than three percent of the total face value of open contracts in stock index futures.

In analyzing the price limits imposed by the exchanges on various stock index contracts, the Commission focused on the recent experience of stock market prices--including the period of mid-October 1987. Based on that analysis, the specified levels appear to represent an appropriate balance between the positive and negative aspects of price limits described above. For instance, for the actively traded S&P 500 futures contract, which accounts for about ninety-five percent of the total market value of all open stock index futures contracts, the analysis shows that the multi-level limits now in place would have been in effect infrequently during the thirteen-month period from January 1987 through January 1988. However, these price limits would have had a substantial impact on futures settlement prices in mid-October 1987, and on those days when the daily price limits would have been reached, those limits would have constrained stock index futures prices significantly relative to the prices that prevailed at the end of those trading days. In addition, the CME's new price limit for the opening of the S&P 500 futures contract would have been reached each day during the week of October 19-23.

Actions by the CFTC--Financial Integrity of Futures Markets

Subsequent to October 19, the Commission took immediate action to assess the operation of regulatory and self-regulatory financial protection systems during the October market break. The staff's preliminary financial oversight analysis is summarized in the Interim Report on Stock Index Futures and Cash Market Activity During October 1987 (Interim Report), which was prepared on an expedited basis and presented to the Commission on November 9, 1987. Thereafter, the Commission took a number of other actions to assess the operation of CFTC and futures SRO financial regulatory systems during the market break, to identify measures that could be taken to reinforce the capacity of existing financial systems to respond to extreme market volatility, and to stimulate self-regulatory organizations to review and enhance their own programs to augment available financial protections. These actions include the following:

- Development of follow-up data concerning the financial impact of the October market break upon futures firms and futures customers. To assess the effectiveness of financial protection systems during the October market break, the Commission's staff issued a special call, pursuant to CFTC Regulation 1.10(b)(4), for financial reports by all FCMs as of October 31, 1987, collected survey data from twenty-three FCMs, which carried approximately two-thirds of total futures customer equities, concerning such matters as customer defaults and position liquidations, and analyzed notices filed by FCMs pursuant to the Commission's financial early warning reporting system. 2/ The staff's findings based upon these data are summarized in the Financial Follow-up Report.

o Review of the operation of clearing organization systems for the collection and payment of margin. As part of its post-market break financial oversight review, the Commission's staff also reviewed the operation of clearing organization systems for the collection and payment of margin. This analysis included a review of the amount, frequency, and results of daily and intra-day margin calls issued by the CME Clearing House and by the BOTCC, a review of contractual relationships between clearing organizations and their settlement banks, and an inquiry into the operation of settlement and banking systems relevant to the flow of margin funds during the week of October 19-23. The staff's findings based upon these data are summarized in the Financial Follow-up Report.

o Review of customer complaint data. The Commission's staff also surveyed those futures exchanges which trade stock index contracts, the National Futures Association, and the Commission's Complaints Section to collect data concerning customer complaints relating to futures activity during the market break. The staff's findings based upon these data are summarized in the Financial Follow-up Report.

o Issuance of financial oversight conclusions and recommendations. Based upon its analysis of financial data collected following the market break, the Commission's staff prepared the Financial Follow-up Report summarizing its findings and recommendations relating to federal regulatory and industry self-regulatory financial protections in the futures markets. The staff's recommendations addressed several measures, including implementation of the margin pay and collect information-sharing system, increased use of intra-day margin calls, and clarification of contractual relationships between clearing organizations and clearing banks, which are reflected in the exchange actions previously summarized.

o Self-regulatory program reviews. Following the market break, the Commission's staff initiated a review by the futures SROs to identify measures that could be taken to reinforce existing financial protections against extreme market volatility. In correspondence with each exchange and clearing organization, CFTC staff requested that each SRO consider potential program enhancements to strengthen protections against future periods of volatility and preliminarily identified seven program areas for

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2/ CFTC Regulation 1.12 establishes a financial early warning system which requires, among other things, that FCMs notify the Commission and their designated self-regulatory organizations of capital impairment and other specified conditions that constitute or could lead to financial deficiencies, including a failure to maintain adjusted net capital equal to at least 150 percent of the greater of the required minimum of the applicable self-regulatory organization or of the Commission.

priority consideration. These program areas included such matters as implementation of the pay and collect data-sharing system, integration of market surveillance data into SRO computerized financial surveillance systems, and enhancement of SRO audit programs to ensure that member firms have the capability to monitor and maintain continuous capital compliance. Commission staff subsequently met with the Joint Audit Group, a self-regulatory council on which all futures exchanges and the National Futures Association are represented, to discuss the staff's recommendations in each program area. SRO responses to the Commission staff's recommendations have generally been positive. The Commission and its staff continue to consult with the SROs to stimulate progress toward program enhancements recommended following the market break and to monitor SRO responses to the Commission's financial recommendations.

o Establishment of centralized computer base for FCM financial data. In the Financial Follow-up Report, Commission staff recommended that FCM financial data be maintained routinely in a computerized data base that would be accessible to CFTC staff as well as to all SRO financial surveillance staffs. The Commission currently maintains financial information filed by FCMs in hard copy and computerizes a limited portion of such data. Currently, discussions with the futures SROs concerning establishment of such a data base are underway, and Commission staff is developing appropriate computer systems.

o Enhancement of financial surveillance data systems. The Commission's staff is also assessing measures that could be taken to refine existing data, including large-trader data and exchange clearing member position data that are collected and used by the Commission and the futures exchanges for market and financial surveillance, to facilitate more effective financial surveillance. Such measures include enhancement of existing systems to produce aggregate intermarket position data for CFTC-regulated markets. Such aggregate data could be made available to exchanges and other regulators during periods of volatile markets to identify concentrations of similar or related positions in futures held by customers and/or by clearing firms on multiple exchanges that could pose a financial threat to a clearing firm. Such intermarket position data would be useful not only to the futures SROs but, where firms or customers also are involved in the securities markets, to the Securities and Exchange Commission (SEC) and the securities SROs. Once established, such a program could provide a model for routine compilation of data to permit ongoing, daily assessments of full intermarket exposures, including domestic and foreign securities as well as futures positions.

Actions by the CFTC--Surveillance Data

The Commission is moving on several fronts to ensure that more complete and timely data are available for analysis in the event of continued volatility in the stock market. First, each commodity exchange currently maintains a daily record of each trade (trade register) with certain identifying information. This information includes the name of the firm clearing the trade and a customer-type indicator (CTI) that shows the type of account for which the trade was executed. 3/ Commission staff is exploring ways to use this daily record of trades to identify more rapidly and accurately specific types of transactions involving both futures and stock trades, such as index arbitrage.

In the short run, consideration is being given to requiring additional CTI codes for stock index futures transactions to identify various types of transactions. The advantages of this approach are the short time required for implementation and the low cost due to the slight changes to current computerized records that would be required.

For the longer term, the Commission is exploring with the exchanges and FCMs changes and additions to account-number information. It may be possible, for example, to require that the account number for a trader be recorded on the trade register and that this number be the same as the number provided to the Commission and the exchanges for their respective large-trader reporting systems. While some exchanges currently have account numbers in their trade register data, the exchanges do not have specific requirements regarding such use of account numbers. Such requirements would allow the rapid identification of traders' timed transactions and the integration of those data with other information collected through the Commission's or the exchanges' large-trader reporting systems. Preliminary discussions with several exchanges indicate, however, that this latter approach requires significant preparatory analysis since it could necessitate industry-wide changes to existing accounting systems.

With respect to the CFTC's large-trader reporting system, Commission staff has implemented a special identification system for tracking institutional accounts. The staff also is reviewing the levels at which the positions of large traders in stock index futures currently are reported to the Commission in terms of the proportion of open interest represented by reporting traders and the numbers of traders being reported. If appropriate, proposals to lower these reporting levels will be published in the Federal Register for public comment.

THE COMMISSION'S EMERGENCY POWERS

In addition to the authority to support the foregoing regulatory initiatives, the Commission also has broad statutory authority to take emergency action in extraordinary circumstances. This authority includes the power to halt trading in one or more futures contracts or to resume trading if the Commission determines it is appropriate to do so.

In 1974, Congress enacted Section 8a(9) of the Commodity Exchange Act, which authorizes the Commission

> to direct [a commodity exchange] whenever it has reason to believe that an emergency exists, to take such action as, in the Commission's judgment, is necessary to maintain or restore orderly trading in, or liquidation of, any futures contract.

3/ The CTI code identifies whether a trade was executed for the floor broker making the trade, the firm clearing the trade, another floor broker or member, or a customer.

In approving this compromise version of Section 8a(9) which was enacted into law, the House and Senate conferees emphasized that "[t]he effective use of the emergency powers requires the careful exercise of expert and impartial judgment by the Commission." 4/

The Commission's long-standing policy in emergency situations is that the exchanges should act in the first instance. As a result, the Commission has found it necessary to take emergency action on only four occasions. Thus, the Commission has acted consistent with the Congress's intent that it balance various broad public interests--including the desire for minimal government intervention in the markets--against the need for carefully selected but effective federal action to assure a sound and viable marketplace.

In reauthorizing the Commission in 1978, 1982, and 1986, the Congress has favorably reviewed the Commission's approach to the use of its emergency authority. In 1982, the Congress expanded Section 8a(9) expressly to confirm that the Commission's emergency powers included, but were not limited to, "the setting of temporary emergency margin levels on any futures contract, and the fixing of limits that may apply to a market position acquired in good faith prior to the effective date of the Commission's action." 7 U.S.C. 12a(9)(1982).

In addition to empowering the Commission to take "such action" as the Commission judges will restore or maintain orderly trading, the Congress also has provided a broad definition of an emergency in Section 8a(9). Specifically,

> The term 'emergency' as used herein shall mean, in addition to threatened or actual market manipulations and corners, any act of the United States or a foreign government affecting a commodity or other major market disturbance which prevents the market from accurately reflecting the forces of supply and demand for such commodity . . . .

In deciding whether to invoke its emergency powers under this definition, the Commission has paid particular attention to price and other factors in the cash markets for the underlying commodities on which the futures contracts are based.

While previous Commission emergency actions have involved agricultural products, it is clear that the Act's definition of emergency extends to developments in the underlying markets for financial commodities, such as government securities and cash-settled equities indexes. In this regard, in 1978, the Congress added Section 2(a)(8)(B) to the Act to specify that the Commission, in considering possible emergency action under Section 8a(9) affecting futures contracts involving any security issued or guaranteed by the United States, should evaluate the comments it receives from the Treasury Department and the Board of Governors of the Federal Reserve System. The Commission also would apply this policy to comments received from these agencies, as well as the SEC, if the Commission were to consider emergency action involving stock index futures contracts.

4/ Senate Report No. 1194, 93d Cong., 2d Sess. 38 (1974).

COORDINATION EFFORTS SINCE OCTOBER 19, 1987

Communication and coordination among the CFTC, the SEC, the Federal Reserve Board and other financial regulatory agencies, as well as among the securities and futures exchanges, was already well established prior to October 19. Building upon that foundation, interagency and interexchange coordination was excellent during the week of October 19, as noted in both the Report of the President's Task Force on Market Mechanisms and the General Accounting Office's preliminary report. 5/ Of course, any system-wide shock is likely to suggest areas where enhancements can be made. In the weeks and months since October 19, a variety of efforts have been undertaken to enhance coordination mechanisms and formalize communications systems that worked well on an ad hoc basis during the market break and to develop contingency plans to deal with possible market crisis situations that may arise in the future.

On October 27, 1987, Acting Chairman Hineman, Chairman Ruder and members of their senior staffs met to discuss improved interagency liaison. The next meeting among the same parties, on November 12, 1987, resulted in an agreement to increase the frequency of meetings among SEC and CFTC senior staff members to discuss matters of mutual interest and the preparation and distribution of a "crisis management phone book" listing the names and phone numbers of key persons at the securities and futures exchanges and financial regulatory agencies.

Acting Chairman Hineman met again with Chairman Ruder on December 23 and with Chairman Greenspan on January 8 to discuss interagency coordination issues. On January 13, Acting Chairman Hineman met with the leadership of the Chicago Mercantile Exchange and the Chicago Board of Trade to discuss issues related to the October market events, including ways of enhancing interagency and interexchange coordination. On January 21, Acting Chairman Hineman discussed the same issues, particularly better coordination among the exchanges and institutional users, with the President of the New York Futures Exchange, the President of the New York Stock Exchange, and the Chairman of the Futures Industry Association. Also, on January 11, the heads of the securities and futures SRO's met in New York to discuss methods of improving communications.

Chairman Ruder, Acting Chairman Hineman and staff members of the two Commissions met again on February 9. Items on the agenda included contingency plans for market emergencies, information sharing, margins, circuit-breaker mechanisms, intermarket front running and participation of futures exchanges in the Intermarket Surveillance Group (ISG).

On February 10, Acting Chairman Hineman and Chairman Ruder met with John Phelan, Chairman of the New York Stock Exchange and Leo Melamed, Chairman of the Executive Committee of the Chicago Mercantile Exchange. Based on discussions at this meeting, the

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5/ For details concerning the CFTC's part in these coordination efforts, see pp. 29-34 of the CFTC's Interim Report on the October market events.

CFTC and SEC wrote to their respective exchanges asking them to give immediate consideration to the related areas of interexchange information sharing on a routine or continuing basis and flexible contingency planning for emergency situations. The CFTC request was sent to the four futures exchanges that have active stock index futures contracts. That request asked the futures exchanges to advise the Commission concerning

> [W]here you believe improved procedures are needed to facilitate the prompt sharing of accurate market and financial information among the securities and derivative market self-regulatory organizations.

All of the responses of the futures exchanges noted that a substantial amount of interexchange coordination already exists, particularly regarding surveillance of the financial condition of FCMs and broker/dealers. Nevertheless, the four futures exchanges also saw the need for additional efforts by futures and securities exchanges to enhance interexchange information sharing and emergency coordination. Several exchanges offered specific suggestions to achieve that end, including the prompt convening of meetings among the exchanges to discuss these issues and the development of a formal interexchange group through which they could address financial and market surveillance issues on a routine basis.

There are two specific areas in which the futures exchanges believe improvements are needed. One is in obtaining prompt access to relevant securities position and transaction information to be used in conjunction with available futures market surveillance data to augment the futures exchanges' financial and market surveillance. The futures exchanges also noted their need for advance notice of emergency actions by other exchanges, particularly market closings, and of the facts necessitating those actions so that coordinated responses can be implemented when appropriate. On February 24, representatives of securities, options and futures exchanges met to discuss technical issues related to cooperation and information sharing. On March 16, SEC and CFTC staff led a meeting of representatives of securities exchanges and futures exchanges that trade stock index products, to discuss information-sharing procedures.

On February 26, a meeting was held at the Federal Reserve Board among Chairman Greenspan and Vice Chairman Manuel Johnson; Chairman Ruder of the SEC; Commissioner Hineman and myself, as Chairman of the CFTC (I had been sworn in earlier that week); and senior staff members of the respective agencies. The discussion covered, among other issues, plans to formalize the ad hoc communications procedures that worked well during the October market break and enhanced information sharing. The agency Chairmen appointed staff members to an interagency group that would meet to work out the details of improving coordination and information sharing procedures. That staff group held its initial meeting on March 7.

In addition, as previously mentioned, there have been a series of meetings and letters aimed at enhancing futures exchanges' participation in the ISG. Futures exchanges have participated informally in meetings of an ISG subcommittee for several years. On January 15, 1988, Acting Chairman Hineman wrote to the outgoing Chairman of the ISG in support of greater futures exchange participation in the deliberations of the ISG, whether through formal membership or otherwise. In a January 25 letter, the ISG Chairman responded that futures exchanges and CFTC representatives had been invited to, and would attend, the ISG's January 28 annual meeting. On February 4, the new Chairman of the ISG wrote to the presidents of those futures exchanges that trade stock index futures enclosing a copy of the ISG's basic operating agreement for their review as a prelude to exploring a more formal affiliation between the futures exchanges and the ISG. Those reviews are currently ongoing. In addition, on February 12, Chairman Ruder wrote to the Chairman of the ISG to encourage him to facilitate participation by futures market self-regulatory organizations in relevant ISG subcommittees.

The agencies are continuing to encourage enhanced communication among the exchanges, including particularly the sharing of information on market conditions and financial risk related to intermarket positions. Further interagency meetings not listed here have taken place at the staff level to discuss, among other issues, intermarket frontrunning.

The Commission also recognizes that futures markets are international markets and is continuing its efforts to improve regulatory cooperation and information sharing on the international level as well. Commission senior staff members attended an international meeting of regulators having responsibility for securities and derivative products (the "Wilton Park Group") in the United Kingdom on February 17-19. Participants discussed market events and enhanced cooperative enforcement and information exchange. On March 9, the Commission's senior staff and I, as Chairman, hosted an international futures regulators meeting in Boca Raton. Officials representing regulatory agencies from the United Kingdom, France, Switzerland, Hong Kong, Malaysia, Australia and Canada were present. The agenda included the Commission's new foreign futures and option regulations, the events of October 19 and the need for enhanced financial and market information sharing, as well as enforcement-related information sharing. As futures trading has developed in other nations, foreign government regulators have spent much time with the CFTC learning how our regulatory system functions. The March 9 meeting is one of regularly scheduled twice-yearly international meetings among futures and option regulators which have been going on for several years.

CLARIFICATION OF CERTAIN ISSUES DISCUSSED AT THE HEARINGS

Program Trading and Index Arbitrage

Despite all that has been written and said about the events of October 1987, there is still apparent disagreement as to the characterization of various trading strategies prevalent at the time. A variety of disparate strategies have been labeled as "program trading," and it has been asserted erroneously that all or most of such trading is related to stock index futures markets.

In fact, program trading is simply the simultaneous purchase or sale of a basket of stocks. As such, it is not a new concept, although recent advances in automated order routing systems have facilitated the rapid transmission and execution of orders for baskets of stocks in normal market circumstances. For example, if a mutual fund or a pension fund wished to sell a portion of its diversified equity portfolio, it could do so through a sell program on the New York Stock Exchange (NYSE), often using the NYSE's automated routing system called "Super DOT."

"Index arbitrage" is a special form of program trading that involves related trades in stocks and stock index futures or options. Such strategies, which are most commonly executed by or for pension or endowment funds and large securities broker/dealers, involve nearly simultaneous purchases or sales of baskets of stocks and the taking of equal and opposite positions in stock index futures or option contracts. Arbitrage activity is designed to capture a profit from price disparities between the stock market and the related index contract; arbitrage functions to reduce intermarket price disparities, thereby maintaining a proper economic relationship between the stock and index derivative markets.

Another form of program trading has been termed "portfolio insurance." This trading strategy is a specialized type of portfolio hedging that is designed to shift the allocation of a fund's portfolio out of stocks and into cash or bonds to protect the portfolio from a decline in stock market prices. Portfolio insurance has been characterized as a disciplined form of entering stop-loss orders that can be carried out in either the securities or derivative markets. The strategy calls for increasing short positions in stock index futures or the sale of stocks after the market begins to fall, and calls for offsets of short futures positions or purchases of stock when the stock market rises to replicate the risk-return characteristics of a purchased put. While portfolio insurance originally was designed for execution in the stock market, during the two or three years preceding October 1987 the low transaction costs and high level of liquidity in the stock index futures market resulted in most portfolio insurance being executed in the futures rather than the stock market.

In sum, program trading is first and foremost a stock market strategy and is not restricted to index arbitrage or other futures-related trading strategies. The Commission staff's Final Report carefully distinguishes the different forms of program trading to assess their relative importance during that period. The Final Report focused on the potential interaction in the futures market of index arbitrage and portfolio insurance trading to determine whether there was any evidence that the price volatility in the stock market was caused by the much publicized "cascade scenario."

As described in the CFTC Final Report, index arbitrage accounted for only about 6 percent of total NYSE volume on October 19, a relatively low amount in comparison with previous days of stock market declines that have been studied. The greatest concentration of index arbitrage sell programs occurred during the first hour of trading that day. Despite large reported futures price discounts and rapidly falling stock prices after 2 p.m., index arbitrage trades diminished significantly after that time. In the days following October 19, index arbitrage was an insignificant percentage of NYSE volume due to NYSE actions to curtail that type of trading. Despite such curtailment, stock prices remained volatile during the following days, and no substantial sustained price recovery occurred, supporting the finding that index arbitrage was not the cause of the stock market's collapse.

Although portfolio insurance and other hedging activities in stock index futures were substantial on October 19, there was no correlation among high concentrations of index arbitrage, portfolio hedging and the largest intraday periods of price weakness. While index arbitrage sell programs were concentrated during the first hours of trading on October 19, portfolio hedging using futures was relatively constant throughout the day.

Furthermore, program trading of stocks without a futures market counterpart, i.e., non-arbitrage sales of baskets of stocks, accounted for a larger proportion of total stock sales on October 19 than did futures-related program trading of stocks, i.e., index arbitrage. During the first half hour of trading, for example, one mutual fund group entered stock sell orders for 17.5 million shares; this compares to 6.2 million shares of index arbitrage sell programs entered during the same time period. For the day, that mutual fund group sold 25.8 million shares of stock, compared to 37.5 million shares sold for all index arbitrage programs and a total NYSE volume of 608 million shares. In addition, for the entire day other program sales of stocks, without futures market counterparts, totalled nearly 52 million shares, and those other program stock sales were larger than index arbitrage for every half-hour interval after 10:30 a.m. Clearly, contrary to some reports, futures-related program trading was not the dominant selling pressure on the NYSE on October 19. The timing and magnitude of index arbitrage and portfolio insurance activities in the futures market during the October market break do not provide evidence to support the cascade hypothesis.

Differential Leverage Between Stocks and Futures

The purpose of futures margins is to protect the financial integrity of the futures markets, and during the October market break the futures margining system served its purpose well, as attested to by all of the official commentaries on stock market events during mid-October. Nevertheless, the Securities and Exchange Commission and others have asserted that stock index futures margins should be raised. Although a variety of reasons for that proposal have been advanced, the most prevalent argument has been that margins for stock index futures, as well as for stock index options, permit greater leverage than do the margins applicable to stock purchases and short sales.

First, there is no evidence that leveraged futures positions contributed to the collapse of stock prices in mid-October. If the CME's S&P 500 futures market in mid-October had consisted of many large, leveraged long positions, such positions theoretically could have contributed to the price collapse. This could have arisen if futures traders had been forced to liquidate their outstanding long futures positions instead of meeting large variation margin calls. However, neither the Commission's large trader data nor the Commission's review of the financial events accompanying the October market break indicate such liquidations.

On October 19, 1987, open interest in the S&P 500 futures contract increased by about 26,000 contracts, rather than decreased. The number of reporting futures traders, the vast majority of whom are broker/dealers or institutional investors, also increased from 148 on October 15 to 186 at the close of business on October 19. These statistics do not support the occurrence of forced liquidations of leveraged positions.

Second, as the CFTC's large-trader data indicate, the S&P 500 futures contract is primarily an institutional market, and its principal users do not have leveraged positions. On October 19, reporting commercial traders 6/ held about 70 percent of the total open interest. Most commercial traders in stock index futures markets are institutional investors, principally pension funds or broker/dealers, that are engaged in index arbitrage or are hedging their stock market risk. In contrast, large speculators, who are subject to position limits in the S&P 500 futures market as in all futures markets, held less than 5 percent of the total open interest in mid-October 1987. Thus, in the stock index futures market there is a notable absence of large speculative positions that could be indicative of differential leverage between the stock and futures markets.

On the other hand, the futures positions of hedgers and other commercial users of stock index futures generally are not leveraged. Most have equivalent offsetting positions, normally in the stock market but also in other derivative markets. Thus, a rapid change in stock prices would be offset by an offsetting change in the value of the related futures positions and, as a result, should not create a significant deficit in the combined stock and derivative market positions of commercial traders. Under such circumstances, futures margin calls may create at most short-term liquidity demands, not solvency concerns. Consequently, it makes no sense from the standpoint of either financial integrity or leverage to adopt a Federal policy of higher initial margins for the stock index futures positions of institutions which have offsetting stock positions.

Further, since the stock index futures market is primarily an institutional market, the 50 percent initial margin requirement of the Federal Reserve Board for public customers is not generally the pertinent figure for comparison to futures margin levels from the standpoint of relative market leverage. In this regard, it is noteworthy that stock exchange specialists and other equities market makers are exempt from the Federal Reserve Board's 50 percent stock margin requirement. Instead, they pay a good faith margin, set by their creditors and related to financial (rather than leverage) requirements. Such deposits are normally 20 to 30 percent (but can be lower) of the current market value of the stocks they are carrying. Furthermore, when the specific mechanics of the futures and securities margining systems are compared, taking into account the futures industry's requirement of daily payments of all contract price changes, one can view the futures margining system as more rigorous during periods of market volatility than the credit system that applies to securities transactions.

Customer margins for futures contracts, which apply to both long and short positions, have two elements, initial margin

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6/ Under CFTC regulations a reporting commercial trader in the S&P 500 futures market is one who has a position exceeding 300 contracts and who has indicated that use of the contract is for hedging or arbitrage purposes.

deposits and variation margin payments. Initial and maintenance margin levels determine the amount of good faith deposit that, respectively, is paid upon taking the position and is maintained on deposit with the FCM while the futures contract is open. If the equity in the customer's account falls below the maintenance margin level, the futures customer receives a margin call to deposit additional funds to restore the account's net equity to the initial margin level. In addition, variation margin must be paid to the clearinghouse by each trader's clearing member to cover any losses on a daily, pay-as-you-go basis. Thus, to maintain a futures position a customer must always have on deposit with his or her FCM an amount equal to at least the maintenance margin level, and that firm must be able to pay out, each day and in cash, 100 percent of all losses in the value of the contract to the clearinghouse.

In contrast, securities customers have only to make a down payment on the purchase price of the stock and can finance the rest of the purchase. The customer may be able to wait as long as five days to make his down payment and does not have to make good on losses daily. For stocks, maintenance margin calls are made only after the value of the stock has dropped so that there remains only a 25 percent, as opposed to a 50 percent, down payment. Because of these essential differences between the futures and securities margining systems, a simplistic comparison of initial margin requirements for securities and futures positions of roughly comparable value can lead to erroneous conclusions.

For example, under the securities margining rules, an investor/speculator not eligible for an exemption under Regulations T or U would be required to deposit $75,000 to purchase a $150,000 portfolio of stocks. Under these rules the firm carrying the stock purchaser need not make a downpayment until the settlement date, which is the fifth business day after the trade date. Thus, the stock trader may not have to deposit any money for the first four days, and no further margin payments would be required unless the stock portfolio's value declined below $100,000. In the event that occurred, the securities trader would normally have five business days to provide funds (although this could be up to fifteen days under special circumstances) equal to the decline in the value of the stock position below $100,000.

In contrast, in October 1987 a long speculative futures position in the S&P 500 futures contract with, for example, a face value of $150,000, would have required an immediate deposit of $15,000 initial margin. A 33-1/3 percent decline in the contract's value to $100,000 would lead to total margin collection of $65,000, i.e., variation margin calls of $50,000 plus the initial margin of $15,000, and the futures margin calls would require payment as the losses were realized. Clearly, payments against a losing futures position can be substantially more than the initial futures margin, and the immediacy of the futures margin system makes it a financially secure one.

Frontrunning

Futures, securities, and securities option exchanges have rules that generally prohibit acts in violation of "just and equitable principles of trade." The futures exchanges that trade stock index contracts, as well as the securities and securities option exchanges, take the position that frontrunning involving such contracts can constitute a violation of those exchange rules. The antifraud and antimanipulation provisions of the Commodity Exchange Act and the Federal securities laws also may be applicable to particular instances of frontrunning.

The CFTC believes the ISG is an appropriate forum for facilitating the timely and effective communication of market surveillance data related to trading patterns of possible frontrunning activity among all exchanges with common self-regulatory interests. In addition, CFTC staff is considering the possibility of a regulation establishing a more specific futures industry standard for the prohibition of intermarket frontrunning activity involving transactions on futures exchanges.

CFTC staff has reviewed the "Manipulation and Frontrunning" section of the SEC staff's report, The October 1987 Market Break (SEC Report, pp. 3-28 - 3-34) and has obtained from SEC staff the related data considered by that staff. Basically, that section of the SEC Report addresses three types of trading activity involving futures markets. Although CFTC staff continues to review this information, the following are brief preliminary comments regarding each of the three types of activity referred to by SEC staff. The first type of trading activity discussed by the SEC staff involving market manipulation is based solely upon a hypothetical scenario. No data were provided by the SEC, and the CFTC staff was informed that this analysis was not based on observations by the SEC of specific trading activity.

Second, the SEC staff refers to certain "Frontrunning of Customer Futures Sales." The referenced activity did not occur in two markets and therefore would not constitute intermarket frontrunning. Instead, the activity described and the data related thereto pertain to possible trading ahead of customer orders by proprietary accounts within a single futures market. Trading ahead of customer orders in futures markets long has been prohibited by rules of all futures exchanges, as required by CFTC regulations, and by the antifraud provisions of the Commodity Exchange Act, and such activity has been prosecuted by futures exchanges and the Commission. Further, CFTC staff's review of the SEC data thus far raises questions regarding whether trading ahead in fact occurred.

Lastly, SEC staff discusses "Firm Selling at the Opening," that is, proprietary trading in stock index futures markets before the opening of component stocks. The SEC staff, noting that the activity cited in its report was not "classic frontrunning," indicated to CFTC staff the limited futures market trading data the SEC staff had reviewed, but they did not provide data reflecting or identifying any related stock market activity. Nonetheless, CFTC staff continues to review all of the futures trading specifically referenced by the SEC to determine if any violative activity occurred.

CONCLUSION

The members of the Commodity Futures Trading Commission believe that additional legislative authority is not necessary to enable this agency to respond to problems of the type that occurred during the October 1987 market break. The Commission's existing regulatory authority, under which a number of initiatives already have been taken, and its broad statutory emergency powers are sufficient to allow it to respond to problems arising in futures markets.

With respect to intermarket and/or interagency concerns, we believe those issues are most appropriately addressed by the regulatory and self-regulatory agencies directly involved. Intermarket and interagency cooperation and contingency planning in addressing these issues is progressing well. The Congress, and particularly the committees with jurisdiction over the agencies involved, have already provided a healthy impetus to this process and can help to assure its ultimate success by lending their full support and encouragement to these interagency, interexchange coordination efforts.

Thank you for the opportunity to appear before you today. I will be happy to answer any questions you may have.

REPORT OF
KALO A. HINEMAN
ACTING CHAIRMAN
COMMODITY FUTURES TRADING COMMISSION
ON AGENCY AND SELF-REGULATORY ACTION DURING THE PERIOD BETWEEN OCTOBER 19, 1987 AND FEBRUARY 22, 1988

TESTIMONY OF
KALO A. HINEMAN
ACTING CHAIRMAN
COMMODITY FUTURES TRADING COMMISSION
before the
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS
UNITED STATES SENATE
February 3, 1988

Mr. Chairman, Members of the Committee:

Thank you for the opportunity you have afforded the Commission to participate in the Committee's examination of the events in the securities markets during October 1987. Numerous studies and analyses have and will be done; likely, several congressional committees will hold hearings such as this one. From the mass of data, opinion, and analyses will flow decisions and public policy choices. Whether the events were the result of macro-economic factors or the activities of a few traders, whether the organizations involved acted and reacted appropriately, and whether changes or refinements in trading and regulatory systems may be necessary, must be determined by examining data and information that may be susceptible to more than one interpretation.

One fact, however, remains clear: the mechanisms in place in October enabled the markets to withstand a tremendous sentiment to sell securities. While I do not wish to criticize those who draw attention to the serious nature of the events of October 19 by use of words such as "melt-down" or "crash," I would note a limitation on these metaphors. They both imply destruction and ruin. This is not the case with the institutions presently under scrutiny. The exchanges, clearinghouses, major participants, and banks involved were open for business the following day—strained, tired and nervous, but open nevertheless.

I am not suggesting perfection in the futures system, nor am I saying we are satisfied with the status quo. No one at the CFTC believes things are the same as they were before October 19. However, in considering modifications to the current system, we must be careful to avoid change for the sake of change. Needed are well-thought-out solutions targeted to very specific goals. Changes should be improvements, and we should be sure that an improvement to one part of the system will not adversely affect other parts.

OCTOBER 1987: AN OVERVIEW
AGENCY AND SELF-REGULATORY ORGANIZATION ACTION

The Commission has thoroughly reviewed the October market decline and has issued four reports, copies of which have been furnished to the Committee: (1) an interim report on stock index futures and cash market activity during that period; (2) a follow-up report that addresses the financial performance of the futures markets clearing systems, capital and segregation compliance by FCMs and other financial oversight issues; (3) a report on trading in the Chicago Board of Trade's (CBT) Major Market Index (MMI) contract on October 20, in which the Commission reviewed allegations of manipulation of the MMI contract and found no indication of such activity; (4) a final report on stock index futures and cash market activity during October 1987, completed on January 29.

After this extensive review of the historic market decline of October 1987, the Commission has concluded that CFTC and self-regulatory safeguards in place for the futures markets worked effectively. No futures brokerage firms (FCMs) failed due to futures market problems and no customer money was lost due to an FCM's failure. On October 19 alone, more than $2.5 billion in variation margin was collected on an overnight and intra-day basis. Futures clearing mechanisms operated effectively despite record volumes, price swings and margin flows. Although decreases in trading activity occurred on the Chicago Mercantile Exchange (CME), a significant number of CME members remained on the exchange floor to execute customer orders in the S&P 500 futures contract throughout the most critical days, 553 members on October 16, 526 on October 19 and 438 on October 20. No futures market had to be closed because of financial or margin collection problems.

The fact that the futures markets stood up to the market crisis remarkably well is testament both to the existing structure of the Commodity Exchange Act ("Act" or "CEA") and Commission regulations (described in detail in the Appendix), of which the centerpiece is vigorous industry self-regulation coupled with active Commission oversight, and to the channels of communication which the Commission has maintained with other agencies and the futures exchanges.

Commission Communication and Cooperation With Exchanges and Other Agencies

During mid-October, effective inter-agency lines of communication were used extensively. The Commission coordinated with the futures exchanges and clearing organizations, the securities exchanges, the SEC, the Federal Reserve Board and other federal agencies having an interest in the financial markets.

Communication with Exchanges

On October 19, I discussed the market situation with Leo Melamed, Chairman of the Executive Committee of the CME, and was informed that the CME had been in contact with New York Stock Exchange (NYSE) Chairman John Phelan and that the two exchanges were in frequent communication and had agreed to cooperate in addressing the unprecedented volatility in the market. Mr. Melamed also stated that margin calls on the CME were being met.

On that day and throughout the remainder of that week, CFTC Commissioners and staff at various levels were in constant contact with the leadership and staff of the four exchanges that trade stock index futures—the CME, the Chicago Board of Trade (CBT), the Kansas City Board of Trade (KCBT), and the New York Futures Exchange (NYFE)—the clearing organizations of those exchanges, and the other futures exchanges and their clearing organizations. These contacts, together with other direct monitoring activities and data collected by the Commission, confirmed that each exchange was maintaining an affirmative financial and market surveillance program as required by the CEA and CFTC regulations, that the financial integrity of the exchange clearing systems was intact and that continuing coordination between the futures exchanges and the NYSE was being maintained. CFTC staff were also in close contact with the staff of the National Futures Association (NFA).

Throughout the week of October 19-23, CFTC staff members were also in frequent contact with financial surveillance staff of the NYSE, the Chicago Board Options Exchange (CBOE), the Intermarket Clearing Corporation (ICC) and the Options Clearing Corporation (OCC) in order to monitor the continued financial integrity of related market systems.

Since October, the Commission has encouraged enhanced coordination between the futures and securities exchanges. For example, on January 13, I went to Chicago to discuss financial market issues, including enhanced coordination with the securities markets, with the leadership of the CBT and CME. On January 21, I went to New York to discuss the same issues with the President of NYFE, the NYSE Vice President for Capital Markets and the Chairman of the Futures Industry Association (FIA).

I also recently urged the Intermarket Surveillance Group ("ISG") to consider, and the SEC to support, the inclusion of futures exchanges in ISG deliberations through formal membership or other means. As this Committee is aware, the ISG is composed of representatives of several securities exchanges (see the Appendix) and is responsible for coordinating industry-wide securities exchange surveillance data. The Commission believes that the important coordinating function served by the ISG could be expanded to foster surveillance coordination between securities and futures exchanges and to improve exchange surveillance data systems for monitoring intermarket trading.

Communication With Other Agencies

As set forth in more detail in the Appendix, over the past six years the CFTC has developed and maintained effective communication with other Federal agencies involved with the regulation of financial markets and institutions. These existing relationships enabled the regulators to coordinate their actions effectively during October and to relay critical information to affected exchanges. Throughout the week of October 19-23, I maintained daily contact with Chairman Ruder of the SEC to coordinate regulatory analyses and viewpoints. The Commission's staff also maintained frequent contact with their SEC counterparts to monitor the financial condition of member firms of both securities and futures exchanges and to keep apprised of exchange self-regulatory actions. For example, on the afternoon of Monday, October 19, during the most precipitous market drop, the CFTC Commissioners and staff met in a closed market surveillance briefing which I had scheduled the previous Friday because of the volatility experienced during the preceding week. SEC staff had been invited and were present at this meeting. After the meeting, the CFTC and SEC staffs immediately began planning a joint call for additional data to provide more detailed information on these market events. The results of that survey are included in the reports recently issued by both agencies.

I, or other Commissioners, also maintained daily contact with the Chairman and other members of the Federal Reserve Board to keep them informed of the current situation. Commission staff kept Federal Reserve staff in Washington and the Federal Reserve Bank of New York notified of ongoing market events and the financial condition of the futures market system. Updates also were provided to the Department of Treasury.

The communication and cooperation among these regulatory authorities were extensive during this critical period, and we have taken steps to solidify further these relationships. Since that week, I and CFTC senior staff have met twice with Chairman Ruder and SEC senior staff to discuss improved interagency liaison and crisis management; key senior staff members of the two agencies also have increased the frequency of their periodic meetings to discuss matters of mutual interest. On another occasion, I met individually with Mr. Ruder to discuss further interagency coordination and, on January 8, I met with Federal Reserve Board of Governors Chairman Greenspan on this same issue. Our discussions have centered upon establishing a more structured and routine system to assure proper coordination in critical situations and generally to keep each other apprised of legal, economic and regulatory developments.

These meetings are only early steps on a long road, but I believe it is the right road. Efforts to enhance coordination on those few issues that have impact across markets should involve the exchanges and the market participants, as well as the expert regulatory agencies. Working together, we can resolve these issues, and I assure you the Commission is wholeheartedly committed to this effort.

Commission Oversight Activities During the Market Decline

During the October 19-23 period, the Commission intensified its financial, market and trade practice surveillance programs. In order to ensure the financial integrity of the markets, the Commission: identified and reviewed the activities of major market participants and firms likely to be at risk of margin default or financial deterioration; performed on-site visits to those firms as warranted; checked FCM compliance with segregation of customer funds and minimum capital requirements, and dealt with deficiencies that occurred; monitored the collection of daily and intra-day margin calls at the futures clearing organizations; and reviewed the exchanges' financial audit and surveillance activities.

At the same time, the Commission, through its market surveillance program, monitored daily activities of large individual traders on the principal stock index futures and futures option markets, with emphasis on the high-volume CME S&P 500 futures contract. Our routine surveillance system provided extensive position data to the Commission on a daily basis from all exchanges, FCMs, clearing members and foreign brokers. For example, by mid-day Tuesday, October 20, Commission surveillance staff had received, for all stock index futures contracts, the gross positions and changes in the positions of all reportable traders for October 19.

Beginning on October 19, the Commission's regional staff substantially increased floor surveillance, maintaining virtually a continuous presence on the floors of the CME and CBT throughout the week. Also, the Commission's computer-assisted trade database and the exchanges' time-sequenced audit trail systems, established in 1987 under CFTC rules promulgated in 1986 (described in the Appendix), enabled Commission staff to evaluate large amounts of data on an expedited schedule. Indeed, the Commission's comprehensive information gathering system allowed it to produce an interim report on stock index futures activities on Monday, November 9, just three weeks after the market decline.

Industry Actions During The Market Decline

While the Commission was prepared to act immediately in the event of a futures firm failure, no such action was required. Exchange channels of communication as well as the CFTC's regulatory structure, including FCM capital and segregation requirements, exchange margin systems, exchange audit and surveillance systems, and clearing systems worked together effectively to prevent such a situation from occurring.

First, the futures exchanges were in frequent contact not only with each other but also with the Commission, the SEC, the Federal Reserve Board, and the New York Stock Exchange, although there was some apparent confusion about whether the NYSE would close on Tuesday, October 20.

Second, the vast majority of FCMs remained in compliance with CFTC capital and segregation requirements throughout the October 19-23 period, and the few firms which did experience temporary difficulties quickly returned to compliance, usually within hours. As a result, the system maintained the safety of futures customer funds despite extremely volatile market conditions.

Third, the exchanges took expedited action to reinforce self-regulatory protections. In order to address the unusually wide price movements in stock index futures markets and equity markets during the week of October 19, the CME, CBT, NYFE, KCBT and ICC imposed temporary emergency rules with regard to stock index products. These actions included imposition of daily price limits, early closings consistent with the cash market, a brief trading halt and more stringent requirements for the granting of hedge or arbitrage exemptions from speculative position limits.

Fourth, the financial stability of futures firms must be credited in part to responsible and aggressive margin management by the futures clearing organizations. The "mark-to-market" system of futures margining provides for settling all losses and paying all profits on a daily basis so that before the following day's trading begins each clearing member neither owes nor is owed money because of the previous day's market moves (see Appendix). In response to the stock and stock index futures markets' high volatility and large price movements in mid-October, the exchanges that trade stock index futures raised initial and maintenance margin requirements for those and other contracts. For example, between October 19 and 29, the CME raised its margin requirements on the S&P 500 contract five times.

During this period, the futures clearing system also demonstrated its capacity to collect daily variation settlements of exceptional frequency and magnitude, with daily and intra-day margin settlements on the CME and CBT throughout the week of October 19-23 totalling nearly twice the number normally made in less volatile markets. Despite the increased volume, resulting in brief intra-day delays in isolated cases in the payment and collection of margin, the system worked as designed and as required. No clearing firm defaulted in the payment of futures margin.

Fifth, exchange surveillance and audit staffs took special steps in order to be able to detect potential problems. Market surveillance staffs monitored large trader data with particular emphasis on those traders adversely affected by price changes so that such traders and their carrying firms could be referred to the respective exchange's financial audit staff for further scrutiny.

Finally, the clearing organizations took special steps to facilitate matching and clearing of all trades. The exchange clearing systems successfully handled exceptionally high volumes of trades and margin calls during these critical days. With few exceptions, clearing firms were able to process orders with little or no disruption to their normal order routing and trade execution systems. The CME, although experiencing a higher than normal number of "out-trades" due to large volume and price volatility, was able to resolve the vast majority of these out-trades by the opening of the following day's trading, using special trade checking sessions when necessary.

Commission Action Following the Market Break

The Commission took immediate action to assess the operation of CFTC and self-regulatory systems during October 1987, identify measures that could be taken to reinforce the capacity of existing systems to respond to extreme market volatility, and analyze the activities of major participants in the futures and stock markets during this period. An Interim Report on Stock Index Futures and Cash Market Activity During October 1987 was prepared by the staff on an expedited basis and presented to the Commission on November 9, 1987. Subsequently, the Commission:

- developed additional data concerning the financial impact of October market events upon FCMs and futures customers through, among other actions, issuance of a special call for special financial reports by all FCMs, collection of survey data from 23 FCMs representing approximately two-thirds of total futures customer equities, and analysis of notices filed pursuant to the Commission's early warning reporting system;

- reviewed the operation of FCM and clearing organization systems for the collection of margin during the market break;
- surveyed exchanges, FCMs, the NFA and the Commission's Complaints Section for data concerning customer complaints relating to stock index futures activity during the market break;
- analyzed large trader activity in the futures markets, including the activities of major broker/dealers and institutional investors;
- performed a detailed statistical analysis of futures and stock market price relationships;
- examined the performance and floor activities of futures exchange members in handling and executing customer orders, market-making and trade practices; and
- initiated a review by futures SROs of potential program enhancements to reinforce existing financial protections in volatile markets recommending, among other things, that the SROs review the effectiveness of internal controls exercised by member firms over guaranteed floor trader accounts, and the SROs accelerate and enhance their information sharing efforts; recommended priority review by the futures SROs and accelerated implementation of outstanding recommendations on specified surveillance program areas; review the liquidity of capital available to clearing firms that are not FCMs, met with the Joint Audit Committee, on which all futures exchanges and the NFA are represented, to discuss the identified program areas; and monitored SRO responses, which were generally positive, to the Commission's recommendations.

Recommendations for Financial Safeguard Improvements

Our review of the market events indicates that the existing statutory framework enacted by Congress in the CEA and the regulatory mechanisms put into place by the CFTC worked effectively to protect the financial integrity of the futures market. Our review, however, has pinpointed a few key areas in which further improvement could be helpful. Briefly stated, the following are highlights of the recommendations made by Commission staff in its follow-up financial report:

1. That futures clearing organizations and their settlement banks review their contractual arrangements to assure that they adequately specify that settlement bank commitments to honor the pay and collect instruction of the clearing organizations are final and irrevocable;
2. That a procedure for expanding the availability of Fed- wire hours during extreme, volatile market conditions be considered;
3. That measures be considered to enhance settlement banks' access to clearing firm customer financial data;
4. That clearing organizations consider routine use or increased use of intra-day margin pays and collects;

5. That FCMs review their margin and audit procedures to assure that they obtain adequate security from foreign-based customers;
6. That the exchanges consider measures to strengthen the protections afforded by the margin system against extreme price fluctuations, particularly with respect to concentrated positions; and
7. That self-regulatory organization information sharing programs be enhanced to encompass securities-related data, in particular the existing program to share pay and collect information concerning firms which are members of more than one futures exchange.

These recommendations are intended to focus the self-regulatory response to financial issues raised by the market decline. I now would like to address some other issues about which much has been written during the past three months.

PROGRAM TRADING

Program trading is a term that has been used in virtually every discussion of the events of October 19 with varying degrees of precision. Actually, program trading is an investment strategy in the stock market that predates stock index futures and options instruments. Today, program trading might refer to all trading techniques designed to buy or sell baskets of stock represented by an index, such as the Standard and Poor's 500 Stock Index. Two types of program trading have received particular attention:

index arbitrage — buying (or selling) futures contracts on equities indexes and selling (or buying) baskets of stock to take advantage of intermarket pricing differences;

portfolio insurance — the practice of decreasing (or increasing) a portfolio's exposure to the equity market, either through stock sales (or purchases) or the sale (or purchase) of futures contracts as stock prices decline (increase). The purpose is to decrease the loss in value of a portfolio in a declining cash market while retaining the opportunity to achieve gains in a rising equity market.

Another term often used is "computerized trading." This term can mean a transaction on the NYSE, buying or selling securities through the Designated Order Turnaround System (Super DOT) which can accommodate market orders of as many as 30,099 shares of a particular stock. The term can also refer to the use of computer technology to assist in making the numerous computations necessary to carry out intermarket arbitrage, portfolio insurance, or other complex trading strategies. We must remember, however, that humans make the trading decision; computers only enable fund managers to rapidly assess complex market relationships and to execute large trades more efficiently.

The Commission's Final Report on the October market events analyzes in detail various aspects of index arbitrage, portfolio insurance and other forms of portfolio hedging in order to determine what effect, if any, futures related activities had on the relationship between the futures and stock markets and whether these activities impeded the proper functioning of the markets.

The data and analysis in the report demonstrate that the prices determined in the S&P 500 futures pits through mid-day on October 19 appeared to be based on current information and reflected actual market evaluations of the supply-demand fundamentals that were present. After that time, the arbitrage link between futures markets and the stock markets was weakened, and large futures price discounts reflected that separation of the markets rather than stale stock prices.

The Final Report should be read in full for a complete understanding of the data; however, the following are some highlights of the Commission's report on trading on October 19.

- Index-arbitrage program stock sales, as reported in the SEC/CFTC survey of firms that have historically conducted the great majority of index arbitrage and portfolio insurance activity, accounted for about 6.2 percent of the 608 million shares sold on the New York Stock Exchange on October 19. During the first half hour of trading one mutual fund's orders alone were more than twice the size of the total index arbitrage and other program sell orders reported for that same half hour in the SEC/CFTC survey;
- Reportedly in response to a large number of customer redemption requests that had built up over the weekend, that mutual fund sold about 25.8 million shares of stock on the NYSE on October 19. Nearly 17.5 million of those shares were sold during the first half hour of trading and other sizeable sales were executed in London before U.S. markets opened on the 19th;
- Record-high concentration of selling on the NYSE on October 19 occurred in the first two hours of trading, reflecting selling pressure that had been forming over the weekend and before. Those mutual fund transactions referred to above accounted for over 34 percent of NYSE volume during the first half hour of trading. Such orders appear to be the reflection of the decisions of thousands of individual investors to sell.
- Total portfolio hedge selling in the S&P 500 futures accounted for approximately 20 percent of the selling in that contract on October 19;
- All reported program stock sales in the SEC/CFTC survey accounted for less than 15% of the 608 million share volume of the NYSE on Oct. 19;
- The SEC/CFTC intraday survey data appear to contradict any attempt to explain the October 19 market move with the "cascade" theory, which suggests that short portfolio hedging and stock/futures arbitrage can interact to cause a downward spiral in stock prices. The only interval during which both index arbitrage stock sell

programs and portfolio insurance futures sales were simultaneously of substantial quantities was from 9:30 to 10:30 a.m. on October 19. During the next hour of trading, arbitrage sell programs were very light while portfolio insurance sales intensified -- both in the futures and the stock markets. The price of the S&P 500 December future trended upward from 10:30 to 11:30 a.m. and the reported large futures discount disappeared--exactly opposite of what the "cascade" theory would indicate.

- Portfolio hedge sales of futures contracts were persistent throughout the day, but the highs and lows of that activity did not correspond with the periods of greatest weakness or recovery of futures prices;
- After 10:00 a.m. on October 19, other stock sell programs unrelated to futures trading were larger in each succeeding half-hour interval than index arbitrage sell programs. For the day, such other reported program sales accounted for 52 million shares in comparison to 38 million shares for index arbitrage.
- Despite the persistently large reported discounts of futures prices to stock index values after 2:00 p.m. on October 19, the magnitude of index arbitrage trades involving the S&P 500 future declined significantly, both in absolute terms and relative to NYSE volume;
- On October 19, among those firms surveyed by the CFTC and SEC, nearly 40 million shares reported as program sales other than index arbitrage were executed in the stock market for portfolio insurance purposes rather than as hedge positions in the futures market.

In sum, the stock market on October 19 did not fall due to continuous interaction between index arbitrage and portfolio insurance selling. We have not found evidence that a particular trading strategy caused the October 19 market decline. In fact index arbitrage selling accounted for between 6 and 13 percent of total NYSE volume on October 14, 16 and 19, with the largest percentage reported on October 14. These amounts are less than reported for September 11 and 12, 1986, a period for which the SEC staff concluded that index arbitrage was not the cause of the magnitude of market declines for those days although such arbitrage may have condensed the period in which changed investor attitudes were reflected in the stock market.

THE BRADY REPORT

As I noted earlier, numerous studies are evaluating the October market experience. One of the most noteworthy to date is the Report of the Presidential Task Force on Market Mechanisms, known as the "Brady Report." The Commission is pleased to have this opportunity to share its views on the conclusions and recommendations of that report.

Based upon its analysis of the events of mid-October, the Brady Task Force recommended that:

* Because, from an economic viewpoint, the stock, stock index and options market constitute "one market", one agency should coordinate the few, but critical, regulatory issues which have an impact across the related market segments and throughout the financial system.
* Clearing systems should be unified to reduce financial risks.
* Margins for futures contracts and stock purchases should be "consistent."
* Circuit breaker mechanisms (such as price limits and coordinated trading halts) should be formulated and implemented to protect the market system.
* Information systems should be established to monitor transactions and conditions in related markets.

One Market

With respect to the Brady Report's "one market" concept, it has long been recognized that the stock index futures, stock and stock options markets are, from an economic viewpoint, closely related. Indeed, this principle holds true for every derivative market and its underlying cash market. Under normal circumstances, a properly designed futures contract and its cash market will move in tandem, remaining linked by common market participants and arbitrage. Thus, just as in the case of wheat, gold, or gasoline futures, the stock index futures markets are intended to, and in ordinary circumstances do, reflect the underlying cash (stock) market.

Although the stock index futures and stock markets are economically linked, it must be remembered that these markets, like all futures and cash markets, operate differently and perform different functions. The stock market is an acquisition market with a capital formation or investment purpose. The futures market is a market which allows participants to shift the risk of price moves. These differences in purpose, and the fundamental differences in the operation of these markets, have understandably generated different regulatory schemes.

One Coordinating Agency

The Commission endorses the notion of a coordinating group composed of existing governmental regulatory agencies, including the CFTC, the SEC, and the Federal Reserve Board. Indeed, steps have already been taken in this regard, as evidenced by meetings between myself, Chairman Greenspan, and Chairman Ruder.

Unified Clearing System

The Brady Report's recommendation for a unified clearing system is suggested to assure that positions of market participants in more than one market are known to clearing organizations, that lenders are able to consider the intermarket exposure of market participants in making lending decisions, and that the necessity to transfer funds among markets does not impair liquidity.

The Commission believes that these objectives can and should be achieved by the financial regulatory agencies without creating a single umbrella clearing organization. The Commission has taken steps to maximize access to financial data by futures clearing organizations to facilitate cross-market financial surveillance of firms with dual or multiple clearing memberships. Prior to the market break, the Commission recommended the establishment by all futures self-regulatory organizations (SROs) of a computerized system for the routine sharing of margin pay and collect data among all futures clearing organizations with respect to firms that are members of more than one futures exchange.*/ The futures SROs have agreed to establish such a system and are in the process of finalizing its technical aspects. In addition, agreement has been reached with the Options Clearing Corporation ("OCC") for the inclusion in this system of premium pay and collect data for securities options. The Board of Trade Clearing Corporation ("BOTCC"), which has been coordinating development of the technical aspects, anticipates that this data-sharing system will be fully operational for the sharing of futures and OCC option data by the end of February 1988. In addition, discussions are underway with respect to incorporation into this data-sharing system of related data from the National Securities Clearing Corporation ("NSCC"). If NSCC data are included within the system, a centralized data base for all futures and most securities cash flows will be established.

The Commission is also exploring ways in which its own large trader data (currently collected from FCMs, non-FCM clearing members, and foreign brokers for all futures market participants with positions over a certain size and used by the Commission for market and financial surveillance), can be expanded to facilitate more effective financial surveillance over futures firms. Such enhanced systems could also generate information of use not only to the futures SROs, but also to the SEC, securities SROs and foreign regulators to facilitate inter-market financial surveillance.

However, to go beyond information sharing and seek to implement a unified clearing system concerns us not only because of the administrative complexity but also due to the increased risks that a unified system might pose. Even if the substantial differences in clearing and settlement procedures for stocks, futures and options contracts were overcome, a single clearing organization would concentrate all risk exposure in a single entity and thus could increase the risk of system-wise financial default in times of great market stress. The Commission believes that existing and contemplated data-sharing systems can achieve many of the benefits of unification while avoiding these risks. We caution against the wholesale restructuring of existing clearing systems without extremely thorough and careful study.

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*/ Currently, the Board of Trade Clearing Corporation and the CME, which together represent approximately 80 percent of futures volume nationwide, share futures variation pay and collect data and option premium pay and collect data on a routine, computerized basis.

Consistent Margins

As it considers the Brady Report's recommendation to establish consistent margins for futures contracts and stock purchases, the Committee may wish to recall that in enacting the 1933 and 1934 Federal Securities Acts and the 1936 Commodity Exchange Act, Congress understood that, unlike securities markets, the futures markets were not equity investment or capital formation markets. At that time Congress did not require federal oversight of the performance bond function of margin in the futures market. While Congress did vest routine margin setting authority over securities in the Federal Reserve Board, it recognized that authority to regulate margin for futures contracts was better left to the exchanges than the federal government.

While permitting a stock purchase on margin is equivalent to lending a portion of the purchase price of an asset that the buyer owns and controls, futures contracts do not transfer ownership but rather establish reciprocal obligations of buyers and sellers to sell and purchase the underlying commodity in the future. Futures margin is required of both sides to a futures contract and serves as a performance bond from both the buyer and seller to assure that both will honor their contractual obligations when they come due.

In the futures markets, exchanges set the levels for each contract, based in part on volatility, and adjust these levels as required. One measure of the success of this system is the fact that between October 1, 1985, and December 10, 1987, maintenance margins set by the Chicago Mercantile Exchange were sufficient to cover daily price moves 96 percent of the time.

Congress has amended the Commodity Exchange Act of 1936 on at least nine occasions but historically has endorsed the exchange margin system by refusing to provide for routine government margin setting authority. In fact, except in emergency situations, Congress specifically has withheld from the federal government authority to set exchange levels of margin.

The futures margin system has served as an important adjunct to the hedging function and a principal protection of the financial integrity of the futures markets for over 100 years. The value of this system was amply demonstrated during the mid-October market decline, when clearing firms timely satisfied all margin demands, no futures commission merchant failed, and no customer monies were lost due to FCM failures.

The evidence produced to date does not support the conclusion that structural changes are necessary in the futures margining system. Indeed, the Brady Report states that "despite low margin requirements the financial performance control aspect of futures margin has operated in a sound and effective manner on an intramarket basis."

Nonetheless, Brady recommends "consistent" margin levels to control speculation and financial leverage. However, it is not at all clear from the Brady Report just what "consistent" means, let alone how "consistent" margin levels would affect the markets.

What is clear is that higher margins would make futures less attractive for hedging. Specifically, commercial hedgers already own or are anticipating the purchase of the underlying stocks. Accordingly, higher margins simply add to the cost of engaging in risk shifting activities. In addition, to the extent that higher margins diminish market liquidity, they also raise the real cost of hedging.

Lawmakers and regulators must be sure that these regulatory "costs" are outweighed by reasonably expected benefits, and we should be able to specifically identify and evaluate these benefits before tinkering with a system that has withstood the tests of time and market stress. In short, all of us must understand the effects of our regulatory actions.

The findings of the 1984 Federal Reserve margin study entitled A Review and Evaluation of Federal Margin Regulations, are also instructive on the issue of volatility:

> The behavior of stock prices since the enactment of margin regulation also does not support the argument that controlled margin trading will tend to reduce stock price volatility. Despite the relatively high federal margin levels and the very low levels of margin credit since the early 1930's, and the significant changes in the nature of the call loan market, stock prices have continued to be about as volatile as they were in the 50 years preceding margin regulation. Also, evidence on the behavior of stock prices around the time of margin changes suggests that such actions may have had little impact on stock prices, a finding that also casts some doubt on the importance of margin ratios for stock prices.

Further, some advocates of higher futures margins assert that the existing margining system permits public speculators to assume more highly leveraged positions in the futures markets than in the securities markets. There is no indication, however, that any such disparity has played a role in the events of October under discussion here. Apart from the different functions served by futures and securities margin, public speculation composes a small portion of the stock index futures markets. In fact, market data indicate that the preponderance of S&P 500 futures positions during mid-October 1987 were held by traders likely to hold offsetting positions in stock or other derivative markets. In particular, at least 70 percent of the open interest in the S&P 500 futures market on October 19 involved commercial traders. The futures positions of these commercial traders normally result from hedging or arbitrage transactions and, therefore, constitute auxiliaries to stock positions rather than leveraged substitutes for them.

In sum, because margin regulation does not appear to have been an effective tool in curbing price volatility and velocity of price swings in the securities markets, because leveraged, speculative trading in index futures is not a dominant percentage, and because the exchange-set futures margin system has successfully maintained the financial integrity of the futures markets, even during periods of great price volatility, the Commission believes that the futures margin system should not be tampered with. Furthermore, in fast-moving market situations it is possible that adding another layer of oversight would build in additional response time that could prove harmful.

Nevertheless, the Commission is sensitive to the public policy concerns that have been raised with respect to differences between stock and stock index futures margins, and we will keep an open mind if new data or arguments are raised on this complex issue.

Circuit Breaker Mechanisms

The Commission supports the Brady Report's recommendation that predetermined circuit breaker mechanisms (such as price limits and coordinated trading halts), could be useful to ameliorate market volatility. The Commission believes, however, that further study is necessary to determine whether the same mechanisms should be utilized in the securities, stock index futures and options markets. The guiding principle should be that circuit breaker mechanisms used in one market must be coordinated with those used in another. Further, they should be made known well ahead of time. Circuit breaker mechanisms should not of themselves introduce another element of uncertainty into the market. For example, the steps taken by the exchanges in response to the market price volatility on the so-called "third Fridays" or "triple witching days," when major stock index futures, options contracts and stock options all expire, have all but alleviated price volatility on those days.

The concept of price limits as circuit breakers is not new to the futures markets, where the exchanges have long imposed price limits on grains and other agricultural contracts. Indeed, the CME, CBT and the KCBT have adopted, pursuant to Commission approval, rule changes imposing maximum daily price limits on the stock index futures contracts trading on these exchanges.

Although the Commission has the authority to halt trading in futures contracts under its emergency power, the Commission believes that this power should be used sparingly and that the exchanges are best able in the first instance to respond to market situations and to assess whether trading halts need to be imposed. Unwarranted cessation of trading eliminates the vital function of the markets--to value assets. Moreover, the effectiveness of trading halts in curbing price volatility is open to question. The two-day weekend following the 108 point drop in the stock market on Friday, October 16, 1987, did not stem the precipitous drop that occurred on Monday, the 19th.

The Commission urges that the question of circuit breaker mechanisms be carefully scrutinized. In view of the differing nature and purposes of the stock and the futures markets, different but coordinated mechanisms may be appropriate. The Commission believes, however, that the decision whether to impose these measures should be made by those best able to assess and address day-to-day (indeed hour-by-hour) market movements--the exchanges, subject to CFTC oversight. The Commodity Exchange Act imposes on the exchanges substantial responsibilities for assuring orderly trading and the integrity of market systems. The exchanges are required to maintain active, affirmative oversight and compliance programs and take necessary corrective actions. The Commission is working with the affected exchanges to explore measures for limiting the possible effect of inappropriate influences on pricing. We believe, however, that nondiscretionary measures are preferred in that they reduce uncertainty.

Information Systems

The Brady report states that the October market decline illustrates the need for an inter-market information system "incorporating the trade, time of the trade and the name of the ultimate customer in every major market segment." The report recommends that all major exchanges, including the stock exchanges, maintain information systems like those of the futures clearinghouse and large-trader information systems, which detail trades by customer. The Commission agrees with this assessment.

The Commission is committed to strengthening interagency liaison mechanisms to assure the continuation of effective interagency coordination in the future and to put into place emergency procedures. Coordination and information sharing among the exchanges during mid-October was excellent, but there is room for improvement. For example, as I have already stated, the ISG can serve as an important forum for fostering inter-exchange surveillance coordination and for improving exchange surveillance data systems for monitoring intermarket trading.

Frontrunning

The Brady Report also identified "inter-market frontrunning" as another issue warranting further review.

Although the antifraud provisions of the Federal securities laws and the Commodity Exchange Act (particularly where a breach of a broker's fiduciary duty occurs) may be applicable to particular instances of frontrunning, no provision in either statutory scheme specifically addresses frontrunning. Commission rules do, however, specifically require exchanges to prohibit futures brokers from trading ahead of their customers in either futures or related commodity options. Commission rules also require futures commission merchants to establish and enforce internal procedures and controls to ensure that customer futures or option orders in a commodity are transmitted to the floor before any proprietary orders. In this regard, CFTC staff is considering whether it is advisable to recommend, among other things, a regulation establishing a minimum futures industry standard for the prohibition of intermarket frontrunning activity involving transactions on futures exchanges.

As in the case of the CEA and securities laws, the rules of securities, securities option, and futures exchanges do not specifically address inter-market frontrunning. Securities and securities option exchanges have sought to address frontrunning through issuance of circulars pursuant to exchange rules that generally prohibit acts in violation of "just and equitable principles of trade." Futures exchanges have similar rules, and the CME, CBT, KCBT, and NYFE, which trade stock index futures contracts, take the position that frontrunning can constitute a violation of these exchange rules.

Notwithstanding the existence of futures exchanges' rules, CFTC staff has reported that it may be necessary to establish standards for identifying potential intermarket frontrunning trading patterns and a mechanism for the timely and effective communication of market surveillance data related to possible frontrunning activity among all exchanges with common self-regulatory interests. The ISG, of which all securities and securities option exchanges are members, appears to be an appropriate forum for facilitating the communication of such market surveillance data. The ISG has considered frontrunning issues in the past, and futures exchanges which trade stock index contracts have participated as observers in the ISG's derivative markets subcommittee.

CONCLUSION

The Commission continues to assess the regulatory responses which would be best suited to the evolving nature of the futures markets. The potential benefits from additional regulatory refinements to complement the current structure are under consideration at the Commission level and at the self-regulatory organizations.

Any organized, centralized marketplace should reflect the forces of supply and demand generally at work and must not be subject to inappropriate influences. Those of us committed to responsible regulation must identify any inappropriate influences and devise means of protecting the integrity of the markets and their users. Events in October and subsequent analyses of those events will show us the strengths of the systems and will reveal areas where improvements and refinements are necessary. We have already begun the process of enhancing and formalizing coordination of our responses in emergency situations. We may want to consider new regulatory measures to avoid panic in the markets. We should be able to devise means of eliminating barriers in clearing and payments systems. These issues are complex, and we must try to identify the specific areas where improvements are needed and attempt to foresee the ramifications of such changes so that other, useful parts of the system are not unduly impaired.

We appreciate the interest of Congress and this Committee and look forward to working with you and answering any questions you may have.

APPENDIX TO THE TESTIMONY OF
KALO A. HINEMAN
ACTING CHAIRMAN
COMMODITY FUTURES TRADING COMMISSION
before the
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS
UNITED STATES SENATE
February 3, 1988

STATUTORY AND REGULATORY FRAMEWORK FOR FUTURES AND OPTIONS TRADING

The Commodity Futures Trading Commission was created in 1974 as an independent regulatory agency to administer and enforce the Commodity Exchange Act (the "Act" or "CEA"). Based on the premise that all commodity futures and options perform the same basic economic price discovery and risk management functions, the Act establishes a comprehensive and uniform structure to regulate trading of these instruments. Under the Act, Congress has granted the CFTC exclusive jurisdiction over all futures trading. 7 U.S.C. § 2.

In accordance with Congress's view that all futures trading performs the same economic services for users of the underlying product, the CFTC has applied the same fundamental economic and legal standards to futures contracts on all types of products. Thus, a single exchange can trade futures on grain and a stock index under the same regulatory structure. The economic purpose of futures contracts as commercial hedging and price basing instruments is the focal point for structuring CFTC regulation.

Industry growth has been the result. In recent years the futures markets have provided an effective risk shifting mechanism for the financial markets as well as the traditional agricultural commodities. Futures on foreign currencies, energy products, U.S. government securities and stock indices are now the most heavily traded commodities. In addition, under the Commission's oversight, exchange-traded options on futures contracts and physical commodities are now available for hedging price risks.

Nature of Futures and Options

Futures and options are delayed delivery contracts in which parties agree to exchange specified property on a certain date (or over a specified period of time) in the future at a price established in the present. In the case of futures, both parties are obligated to perform in accordance with contract terms. One commits to buy; the other, to sell. Delivery is rarely taken. Instead, in 98 percent of all futures contracts, the contract is extinguished by offset (or establishing the opposite position in the contract). In the case of options, obligations differ. In a "call" option a "writer" (seller) commits unconditionally to sell the underlying asset at a certain price on or before some specified time in the future, and the buyer pays a premium to the writer to gain the privilege of purchasing (of calling on the writer to sell) under the terms specified. Obligations are the opposite in the case of a "put": the writer (seller) commits unconditionally to purchase the asset, and the buyer pays a premium for the privilege of being able to sell (to put) the property to the committed writer under the specified terms.

Economic Purposes Of Futures And Options

1. Risk Management

Whereas the primary economic purpose of the securities markets is capital formation for individual companies, the primary purpose of the futures and options markets is to provide a means of shifting or managing price risks that stem from nearly all forms of economic activity. Nonfinancial firms, financial institutions and other persons maintaining various balance sheet positions face the ever-present risk that the movement of prices or interest rates may adversely affect their income and wealth. Futures and options contracts provide these parties a means to avoid or "hedge" against these undesirable developments. These derivative markets make it possible to fix the price at which an asset can be bought or sold in the future (or the interest rate at which money can be borrowed or loaned). That is, a futures or options position can be established whose market value will tend, to a greater or lesser degree, to vary inversely with the price or interest rate exposure that is being hedged. Thus, losses in value in a cash position resulting from the movement of prices or interest rates can be offset by the gains obtained through the futures or options position.

Two essential aspects of this hedging process deserve emphasis. First, the risks that hedgers seek to avoid are not created by futures or options markets but are inherent to the hedger's underlying commercial or financial activities. Second, while some trades may take place between hedgers with different hedging needs, so that the risk exposure of both is reduced, in many cases the party on the other side of the contract with the hedger is a speculator, who acts essentially as an insurer in the hopes of gaining a profit. Thus, the hedger's risk exposure is transferred to the speculator, not eliminated. The increased market liquidity that results from the trading activity of speculators facilitates the ability of hedgers wishing to hedge to establish and quickly close out market positions on competitive terms.

2. Price Discovery

Futures and options markets also serve an important price discovery function. Speculators, in their efforts to make profits, and hedgers in deciding whether and to what extent to establish hedged positions, endeavor to assess information on current and prospective supply and demand conditions in order to better predict future price trends. To the extent that their predictions and the market positions they take accurately reflect future price trends, their activities serve to assure that cash, futures, and options prices are kept properly aligned with current and prospective conditions of supply and demand. These activities also promote efficiency in the production, distribution, and consumption of goods and services.

3. Price Basing

Futures markets also, in some cases, perform a price basing function. This occurs primarily when trading in the cash market is relatively decentralized, at least to the extent that accurate price information reflecting current supply and demand is difficult to obtain. In such cases, there has been a tendency for participants in the cash market to base their pricing on prices established in actively traded futures markets.

Jurisdictional Accord With The SEC

In 1981 the CFTC and the Securities and Exchange Commission ("SEC") recognized a need to coordinate their regulatory schemes to meet the needs of new financial instruments being introduced in the securities and futures markets. The CFTC and SEC developed an agreement, known as the CFTC-SEC Jurisdictional Accord, to eliminate jurisdictional questions concerning the two agencies, that were causing uncertainty regarding the development and marketing of such new financial instruments as stock index futures, options on debt securities and options on foreign currencies.

Under the Accord, which was enacted by Congress in 1982 through amendments to the Commodity Exchange Act and the securities laws, the CFTC continues to regulate instruments and markets that serve risk management and price discovery functions, while the SEC continues to regulate instruments and markets that have an underlying capital formation or investment purpose. Specifically, the Accord reaffirmed the CFTC's jurisdiction over:

- All futures contracts (including futures contracts on U.S. Government securities and on "broadly based" stock or bond indices);
- Options on futures contracts (including financial futures); and
- Options on foreign currencies trading in the commodity markets.

Under the Accord the SEC regulates:

- All options directly on securities (including options on corporate stocks and bonds, and Treasury bills and bonds) as well as options on bank certificates of deposit and corporate stock indices; and
- Options on foreign currencies trading on national securities exchanges.

The Accord provides a formula for the designation by the CFTC of futures and options on futures involving securities indices that expressly provides for SEC review of these proposed contracts on the basis of specified criteria. Under this formula, each stock index futures contract and option thereon must: (i) provide for cash settlement or delivery of an exempted security (other than a municipal security); (ii) not be readily susceptible to manipulation of the price of an underlying security; and (iii) represent a group or index of unaffiliated issurers, and be a widely published measure of, and reflect the market or a substantial segment of the market for, publicly traded debt or equity securities, or satisfy a comparable measure. 7 U.S.C. § 2a(ii).

EXISTING REGULATION OF MARKET MECHANISMS

The CFTC has in place comprehensive regulatory, surveillance and enforcement programs to protect the public from fraud, price manipulation and other trading abuses. A key concept in these programs is vigorous industry self-regulation with Commission oversight. By monitoring the futures industry's self-regulatory organizations (SROs) - the commodity futures exchanges and the National Futures Association (NFA) - and keeping a watchful eye on trading on each exchange, the Commission fosters a fair and competitive environment that serves the economic functions of risk shifting and price discovery.

As described in detail below, the Commission seeks to achieve these goals through a variety of regulatory safeguards, including: (1) the registration of industry professionals who deal with the public; (2) the designation of exchanges to trade only those futures contracts serving price basing and risk management functions; (3) oversight of the industry's financial, market, trade practice and account management surveillance programs; (4) monitoring exchange investigation of customer complaints and disciplinary actions; (5) use of a wide array of enforcement tools enabling the CFTC to halt violations, protect customer funds, impose civil money penalties and refer cases for criminal prosecutions; and (6) surveillance information sharing and cooperative agreements with exchanges and other Federal agencies and foreign governments.

Registration

Through NFA, the Commission registers the firms and individuals who either handle customer funds, solicit customers or give trading advice in commodity futures or options. By requiring fingerprinting and a security check on each applicant's background, this system screens those individuals unfit to be commodity professionals from employment in the futures industry. The Commission oversees NFA's processing of applications and, where appropriate, its granting of exchange floor broker registrations. The Commission has responsibility for conducting registration denial or revocation proceedings against a floor broker applicant or registrant.

Designation Process

The Commodity Exchange Act provides that futures contracts may be lawfully traded only through the exchanges that have been designated as contract markets, and that the CFTC may designate as contract markets only those exchanges which demonstrate their ability to prevent, among other things, market manipulations and to perform other self-regulatory duties. 7 U.S.C. §7. Before a futures contract may be approved for trading, the Act requires that the sponsoring exchange show that trading in the proposed contract will not be contrary to the public interest. 7 U.S.C. § 7(g). Under this public interest standard, each new futures proposal must be shown potentially to provide the economic purposes of price basing and/or hedging. This regulatory standard is unique to futures.

Contract Market Rule Review and Approval

Each exchange is required to submit all of its rules and regulations relating to the terms and conditions of futures contracts, except those related to margin, to the Commission for approval. An exchange can put emergency rules into effect on a temporary basis without seeking prior Commission approval, provided that the exchange's governing body approves the temporary emergency rule by a two-thirds vote, that the exchange notify the Commission of the temporary emergency rule by the fastest available means of communication, and that the exchange thereafter promptly furnish the Commission additional information concerning the emergency and the action taken to respond to it.

If exchange rules violate the Act or Commission regulations, the Commission must disapprove those rules. In order to protect market participants or to ensure fair dealing in futures trading, the Commission may itself amend or supplement exchange rules, after first requesting that the exchange itself make the needed changes.

Congress has specifically excluded those rules which govern the setting of levels of futures margins from the Commission's authority to approve or alter exchange rules, thus allowing exchanges to refine margin levels on a day-to-day basis as they deem appropriate. 7 U.S.C. § 7a(12). For options on futures, the CFTC, pursuant to its plenary authority under Section 4c(b) of the Commodity Exchange Act, 7 U.S.C. § 6c(b), has required that purchasers deposit the full premium at the time that the option is purchased, thus limiting the liability of the purchaser to that amount. Option grantors must deposit margin in accordance with option margin systems established by the exchanges, which are subject to CFTC review.

The Commission also has broad authority when it determines a market emergency to exist to direct an exchange to take any action which the Commission believes is necessary to restore and maintain orderly trading, including changes in margin requirements.

Rule Enforcement Review

The Commodity Exchange Act requires each exchange, through a program of continuing rule enforcement, to ensure that its members comply with exchange rules. 7 U.S.C. § 7(a)(8). Before it will approve an application by an exchange to trade a futures or options contract, the Commission considers whether the application demonstrates that there is in place a suitable rule enforcement program with adequate staffing to make it effective. The Commission periodically reviews each exchange's rule enforcement programs—including audit and financial surveillance, market surveillance, trade practice surveillance, sales practice programs and disciplinary programs—to assure that the exchanges are fulfilling their self-regulatory responsibilities. Each review is summarized in a written report, which is made public. The Commission's findings in such reports have generally been adopted by the exchanges, resulting in continuous SRO program improvements. In certain cases in which SROs nonetheless have failed adequately to discharge their rule enforcement obligations, the Commission has initiated administrative enforcement proceedings against the relevant SRO. In cases where across-the-board changes were needed, the Commission and its staff have issued guidance in the form of audit guides and, as necessary, the Commission has adopted rules directing SROs to upgrade their own rules and programs.*/

Guidelines have been issued in several areas to assure that SRO rule enforcement programs meet minimum standards. In Financial and Segregation Interpretation 4-1, the Commission's Division of Trading and Markets provided detailed standards for SRO financial audit and surveillance programs, and in Sales Practice Audit Interpretation 1, the Division issued minimum sales practice enforcement standards for SROs. In response to industry growth and experience with volatility, the exchanges have improved their surveillance and rule enforcement programs to assure the financial integrity and fairness of the nation's futures markets.

Financial Integrity Protections

The Commission's financial audit and review program is designed to protect the financial integrity of the futures markets through oversight of industry SRO's audit and financial surveillance programs. These activities are intended to ensure that firms maintain adequate liquid capital and to prevent the misuse of customer funds. The three principal financial safeguards monitored by the Commission are segregation of customer funds, minimum capital and early warning reporting requirements, and margins.

A fundamental financial protection established by the Commodity Exchange Act is the requirement that commodity professionals segregate customer funds from the firm's own funds, and maintain those funds for the exclusive benefit of their customers.

A second principal safeguard assuring the security of customer funds and of the futures markets' overall financial integrity is provided by the Commission's minimum capital and financial reporting requirements for futures commission merchants (FCMs). These requirements are intended to make certain that FCMs are financially sound and have liquid assets sufficient to sustain normal market reverses without losses to customers. Commission regulations also establish an "early warning" system to identify high risk firms for intensified surveillance.

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*/ See, e.g., Regulation 1.35, 17 C.F.R. § 1.35 (1987), which establishes minimum audit trail requirements for the recording of trade executions on all exchanges; and Regulation 1.59, 17 C.F.R. § 1.59 (1987), as amended by 52 Fed. Reg. 48974 (Dec. 29, 1987), which, among other things, requires SROs to adopt rules to prohibit their employees from trading in commodity instruments traded on or cleared by the employing SRO and to prohibit members of their governing boards and committees from disclosing or improperly using material, nonpublic information.

A third financial protection basic to the futures markets is the futures margin system. This system is very different from that in securities transactions. Securities margins are essentially extensions of credit, loans to an investor to finance the purchase of a security. A margin call in stock is made to protect the creditor from the dwindling value of the collateral used to secure the loan. Minimum margin levels for securities trading have traditionally been set by the Federal Reserve Board, pursuant to the Fed's responsibility for credit policy.

In contrast, futures margins serve the economic role of a performance bond for the trader's commitments under the futures contract. Unlike securities margins which are paid only by purchasers and short sellers, both the "buyer and the seller" must post futures margin. This performance obligation for each cleared contract is secured by the clearing organization's demand for "original" margin and, depending upon subsequent price fluctuations, for "variation" margin, from the clearing member carrying each customer position. The exchanges also set minimum requirements for margin that their member FCMs must obtain from their customers as "initial" margin for each contract. These margins are based upon moving averages of historical volatility to cover one or two day's potential market movement and are adjusted frequently depending upon market conditions. Futures customers are also subject to maintenance margin requirements established by the exchanges, which generally vary from 40-85 percent of initial margins. If the value of a customer's account drops below the maintenance level, the customer must deposit sufficient funds in his account to restore the margin to 100 percent of the initial requirement. Otherwise, the FCM is allowed to liquidate the customer's account. The requirement that customer accounts be marked to present market value at the end of each trading day is a unique feature of the futures markets.

The Commodity Exchange Act and Commission regulations require each exchange to adopt and enforce minimum financial requirements and reporting rules that are at least as stringent as those established by Commission regulations. NFA and the exchanges have the primary direct responsibility to ensure the financial integrity of their member firms. The Commission is responsible for oversight of the self-regulatory organizations' financial surveillance and rule enforcement programs. Its routine financial oversight activities include evaluation and monitoring of SRO financial surveillance and audit activities, direct audits of FCMs and introducing brokers who are not members of any SROs, and targeted review of FCMs that have "early warning" conditions.

Market Surveillance

The Commission's market surveillance program is designed to maintain free and competitive futures and options markets by preventing excessive speculation and unwarranted price movements. The Commission's program protects the markets from manipulation and other anticompetitive practices by daily monitoring of all active futures and option contracts, the activities of large traders, significant cash futures price relationships and fundamental supply and demand conditions. The Commission also periodically reviews exchange programs to enforce their speculative limit rules.

The Commission routinely conducts daily market surveillance on the basis of data detailing aggregate market activity and the positions of individual large traders. These data are provided daily to the Commission by all exchanges, FCMs, clearing members, and foreign brokers and are routinely available for computerized analysis on a next-day basis.

The Commission's market surveillance staff works closely with the exchanges to deal with any potential market threats that may develop. The Commissioners are apprised of potential problems and significant market developments at surveillance briefings scheduled on a weekly, and if necessary, on an emergency basis, so that the Commission may take prompt corrective action if needed.

Trade Practice Oversight

The Commission requires each futures exchange to maintain a trade practice surveillance program designed to detect trading abuses such as wash trading, bucketing, cross trading, prearranged trading and fictitious trading. The Commission's trade practice surveillance program has several elements. It includes the collection of trading data, the direct analysis of particular market segments, transactions, or participants to detect trading abuses, and floor surveillance to keep apprised of routine and variant trading practices and procedures and otherwise to obtain information from exchange members and exchange or firm personnel. Based on this surveillance activity, the Commission regularly refers suspicious trading activity to the exchanges. If warranted, the Commission brings enforcement actions against those engaging in illegal trading activity.

During the past year, the Commission has developed a computer data base of trade data from the exchanges, which provides the Commission with an automated facility for monitoring and analyzing exchange trading. The Commission's ability to conduct effective trade surveillance has been greatly enhanced not only by the computer-assisted trade database, but also, the futures exchanges' implementation of improved audit trail, or record of trading, systems which provide one-minute execution times for each trade. Since July 1987, the exchanges have had in place systems designed to comply with the Commission's one-minute standard adopted in 1986. The exchanges' implementation of this requirement has significantly increased the exchanges' and the Commission's ability to reconstruct and analyze trading quickly without requesting and reviewing large numbers of original trading documents.

Sales, Marketing and Account Management Practices

The Commission oversees SRO programs designed to prevent fraudulent and misleading practices in marketing and in the handling of customer accounts. The Commission monitors futures industry compliance with the standards established by the Commission in the areas of sales, marketing and account management practices, with particular emphasis on full disclosure being made to the public regarding the costs and risks involved in trading. The Commission assesses the adequacy of exchange and NFA sales practice audit programs required by CFTC regulations, and it may perform selected spot check audits of FCMs, commodity pool operators, commodity trading advisors and introducing brokers.

Disciplinary Actions and Other Enforcement Mechanisms

The Commission requires each exchange to review promptly and thoroughly all complaints received from customers concerning the handling of their accounts or orders. An adequate exchange program of investigating customer complaints consists of a meaningful inquiry into every complaint alleging facts which, if true, would constitute a violation of an exchange rule.

In order to protect futures customers by ensuring that exchanges will promptly and effectively discipline those members that violate exchange rules, the exchanges are required by Commission regulations to include in their rule enforcement programs a procedure which results in the taking of prompt, effective disciplinary action for any violation found to have been committed. NFA has authority to impose various sanctions upon its members for violation of NFA rules. These sanctions include imposition of fines and suspension or expulsion from membership.

The Commission oversees the exchanges' and NFA's implementation of these procedures and hears appeals from exchange and NFA disciplinary decisions. In addition to its oversight responsibilities, the Commission uses an array of enforcement tools to investigate and prosecute violations of the CEA and Commission regulations. Congress has given the Commission authority to conduct investigations (7 U.S.C. § 12), seek injunctive relief (7 U.S.C. § 13a-1), assess civil penalties (7 U.S.C. §§ 9, 13a), issue cease and desist orders (7 U.S.C. § 13b), and refer cases to the Department of Justice for criminal prosecution (7 U.S.C. § 13(a)). The Commission's vigorous enforcement program is designed to curb the misuse of customer funds, manipulation, fraud, anticompetitive practices, and other trading abuses.

Information Sharing and Cooperative Agreements With Other Federal Agencies

The CFTC has taken several concrete steps to coordinate its activities and share information with other Federal agencies concerned with specific commodities underlying designated futures contracts. These steps reflect the Congressional understanding of the relationships between the cash and futures markets. Thus, under Section 2a(8) of the Act the CFTC maintains liaison with the Department of Agriculture to assure that grain and produce futures trading reflects supply and demand factors in the agricultural markets. Similarly, under Section 2(a)(8) of the Act, the CFTC keeps the Department of the Treasury, the Board of Governors of the Federal Reserve System, and the SEC fully informed of CFTC contract market designation and regulatory activities that relate to the responsibilities of these agencies for the purpose of seeking their views, and for considering the relationships between the volume and nature of investment and trading in securities and other financial instruments under their jurisdiction and in futures contracts regulated by the CFTC.

1. Information Sharing Agreements

a. Financial Futures

The CFTC has entered into joint surveillance agreements with the Federal Reserve Board, the Treasury Department and the SEC regarding futures on financial instruments, including stock indices. Under these agreements, agency staff share confidential market information and hold quarterly meetings to discuss current market conditions and the expiration of futures contracts on various financial instruments.

b. Banking Regulators

The CFTC has entered into agreements for sharing bank-related market information with the Comptroller of the Currency, the Federal Home Loan Bank Board, the Federal Deposit Insurance Corporation, and the Federal Reserve Board. These regulators, along with the Treasury Department and the SEC, have been invited to attend the Commission's weekly surveillance meeting where relevant market data is discussed.

c. Liaison With the Department of Agriculture

The CFTC has a special relationship with the Department of Agriculture that includes the attendance of USDA representatives at CFTC's weekly market surveillance meetings, the appointment of liaison officials, and other regular contacts.

d. Futures on Petroleum-based Products

The development of futures on such petroleum-based products as heating oil and gasoline prompted the CFTC to develop a strong working relationship with the Department of Energy, which includes the regular exchange of data and staff discussions on pending policy issues.

e. Cooperative Agreements With Foreign Governments

In an effort to enhance cooperation and mutual assistance in securing compliance with and enforcement of the securities and commodities laws in the United States and foreign countries, the CFTC, the SEC and the responsible regulatory agencies in Great Britain, Canada, Australia and Singapore have entered into formal and informal agreements to share information and cooperate in their enforcement efforts.

2. Contract Market Designation

The CFTC provides the Federal Reserve Board and the Treasury Department with 45 days to comment on certain proposed futures contracts on financial instruments. As previously discussed, the SEC reviews applications for designation as a contract market in futures on stock indices under the CFTC-SEC Jurisdictional Accord. In addition, the CFTC consults with interested Federal agencies before approving new futures or options on such commodities as energy futures or Eurodollars.

3. Office of Congressional and Governmental Affairs

The CFTC's Office of Congressional and Governmental Affairs (OCGA) coordinates the CFTC's activities involving other Federal regulatory organizations. The Office maintains regular communication with the Departments of Agriculture and the Treasury, and confers informally with the Board of Governors of the Federal Reserve, the SEC, the Departments of Justice, State, Energy, Commerce and Labor, as well as the Federal Deposit Insurance Corporation, the Federal Home Loan Bank Board and the Federal Trade Commission.

The OCGA also serves as the Commission's liaison with Congress, including the Commission's oversight and appropriations committees and their staffs.

Information Sharing By Stock and Futures Exchanges

In 1980, the futures exchanges established the Joint Audit Committee ("JAC"), which is composed of representatives of all futures SROs. The JAC coordinates audit and financial surveillance, plans, policies and procedures, particularly with respect to FCMs that are members of more than one SRO. Responsibility for monitoring firms that are members of more than one SRO is allocated among the SROs under a Joint Audit Plan in which all of the exchanges and NFA participate.

In 1981, the securities exchanges formed the Intermarket Surveillance Group ("ISG"), which is responsible for coordinating industrywide exchange surveillance data sc as to assure the integrity of options and equities trading. The ISG is comprised of senior surveillance and enforcement representatives of the following SROs: AMEX, Boston Stock Exchange, CBOE, Cincinnati Stock Exchange, Midwest Stock Exchange, NASD, NYSE, Pacific Stock Exchange, and the Philadelphia Stock Exchange. Exchange surveillance staff from the Chicago Mercantile Exchange, the Chicago Board of Trade, and the New York Futures Exchange recently participated in meetings of a sub-committee of the ISG concerning the surveillance of stock-index products, and have, through the auspices of the ISG, exchanged confidential information regarding the expiration of stock index futures and options.

The Commission believes that the ISG can serve as a vital forum for fostering inter-exchange surveillance coordination between securities and futures exchanges, and for improving exchange surveillance data systems for monitoring intermarket trading. To further these goals, the Acting Chairman of the CFTC recently urged the ISG to consider, and the SEC to support, inclusion of the futures exchanges in ISG deliberations, through formal membership or other means.

The Commission continues to assess the regulatory responses which would be best suited to the futures markets. Events in the last six months indicate that the fundamental structure already in place works. The potential benefits from additional regulatory refinements to complement the current structure are under consideration at the Commission level and at the self-regulatory organizations.

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United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

March 22, 1988

The Honorable Wendy L. Gramm
Chairman
Commodity Futures Trading Commission
2033 K Street, N.W.
Washington, D.C. 20581

Dear Chairman Gramm:

Thank you for testifying before the Committee on March 17, 1988 concerning the stock market crash during the week of October 19, 1987. Your testimony as well as that of Senator Brady and Chairman Gramm helped in establishing a record which will aid the Committee in it's role as overseer of the U.S. futures markets.

In order to complete the hearing record, the Committee would appreciate your answers to the enclosed questions as soon as possible. Please return your responses to Christine Sarcone, Chief Clerk.

Again, I thank you for appearing before the Committee. If you have any questions, please contact John Podesta at 224-2035.

Sincerely,

PATRICK LEAHY
Chairman

PJL/jp

Enclosure

QUESTIONS FOR THE RECORD
FROM CHAIRMAN PATRICK LEAHY

FOR CHAIRMAN WENDY L. GRAMM
COMMODITY FUTURES TRADING COMMISSION

1. Are there any futures exchange rules that address intermarket front running?

2. Are there any statutes or regulations that address front running?

3. How many complaints has your agency received associated with the market activity during the decline of last year?

4. How many of these complaints involved small investors or members of the public?

5. Do you have a breakdown on the percentage of complaints regarding futures contracts as well as options falling under your jurisdiction?

QUESTIONS FROM SENATOR TOM DASCHLE

QUESTIONS FOR CFTC CHAIRWOMAN WENDY GRAMM

You are aware of the fundamental differences between futures performance bond margins and securities credit margins which means that any comparision is like comparing "apples and oranges". However, to the extend any comparison of margin levels is an issue, the Brady Report makes it clear that the 50% margin level in the securities markets is applicable only to public customers and not to the professional market participants. According to the report, professionals were principally responsible for the market activity during the October markets.

The report states that margins for the securities professionals are at the 20-25% level. Futures exchanges have now increased the initial margin levels of stock index futures contracts to the level of 15% of the underlying contract value. Further, as you know, futures market variation payments have to be paid daily, and, in volatile markets, more than once a day. Given the differences between futures and securities margins, and the method of payment, do you consider the 15% futures margin level consistent with and rationalized to levels of margin actually paid by stock market professional participants?

Are commodity markets capable of handling double the volume that they currently handle. In that effort, what is CFTC and the industry doing to address this issue?

The Brady Commission reports that the futures market keeps the market in line and that the futures market is one of the key elements connecting the markets. Given that there is general some agreement that there is "one market", how do you respond to the NYSE's recently proposed rule that terminates the DOT system whenever stock prices rise or fall more than 50 points. Do you feel this will work towards better communication between New York and Chicago?

COMMODITY FUTURES TRADING COMMISSION
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Wendy L. Gramm
Chairman

May 13, 1988

The Honorable Patrick J. Leahy
Chairman
Committee on Agriculture, Nutrition,
and Forestry
United States Senate
SR-433 Russell Senate Office Building
Washington, D. C. 20510-4502

Dear Chairman Leahy:

I am pleased to respond to your questions for the record following the March 17 hearing of the Senate Agriculture Committee.

Attached are the Commission's responses to your questions, and also, a copy of our responses to questions raised by Senator Daschle after the hearing.

Sincerely,

Wendy L. Gramm
Wendy L. Gramm
Chairman

Attachments

Responses to Questions from Chairman Leahy

Question 1: Are there any futures exchange rules that address intermarket frontrunning?

Answer 1: Futures exchanges have rules, similar to securities exchange rules, that prohibit acts in violation of just and equitable principles of trade and acts substantially detrimental to the interests or welfare of the exchange. The Chicago Mercantile Exchange ("CME"), Chicago Board of Trade ("CBT"), Kansas City Board of Trade ("KCBT"), and New York Futures Exchange ("NYFE"), which are the futures exchanges that trade stock index futures contracts, have advised the Commission that intermarket frontrunning involving stock index contracts can constitute a violation of such exchange rules. Futures exchanges also have rules, required by Commission regulation, that prohibit trading in their markets in futures or options ahead of customers' orders for futures or options in the same commodity. Trading ahead is a strict liability violation, in that no fraudulent intent or harm is required to prosecute a violation. All futures exchanges actively enforce these "trading ahead" rules.

Question 2:	Are there are statutes or regulations that address frontrunning?
Answer 2:	Although provisions of the Commodity Exchange Act that govern fraud and market manipulation and provisions of the federal securities laws that govern insider trading may be applicable to particular instances of frontrunning, [1] no provision in either statutory scheme specifically addresses intermarket frontrunning. With respect to intramarket frontrunning, Commission Regulations 155.2(a) and (b) require futures exchanges to prohibit floor brokers from buying and selling futures or options on futures ahead of customers' orders for futures or options on futures in the same commodity. As noted above, all futures exchanges have rules that prohibit trading ahead.
Question 3:	How many complaints has your agency received associated with the market activity during the decline of last year?

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[1] See, e.g., Commodity Exchange Act 4b, 6(b), 9(b); Securities Exchange Act of 1934 10(b); and Securities and Exchange Commission Rule 10b-5.

Anwser 3: The Office of Proceedings has received five (5) reparation complaints associated with the market activity during the decline last year.

Question 4: How many of these complaints involved small investors or members of the public?

Answer 4: All complaints were filed by members of the public, not firms or corporations. Complainants are not required to identify whether they are large or small investors; hence, we do not have sufficient information to determine the size of the investors.

Question 5: Do you have a breakdown on the percentage of complaints regarding futures contracts as well as options falling under your jurisdiction?

Answer 5: Of the five complaints received related to the market decline, one involved options and the other four involved futures contracts.

Responses to Questions from Senator Daschle

The Brady Report states that margins for the securities professionals are at the 20-25% level. Futures exchanges have now increased the initial margin levels of stock index futures contracts to the level of 15% of the underlying contract value. Further, as you know, futures market variation payments have to be paid daily, and, in volatile markets, more than once a day. Given the differences between futures and securities margins, and the method of payment, do you consider the 15% futures margin level consistent with and rationalized to levels of margin actually paid by stock market professional participants?

Futures and securities margin systems reflect the different functions of those markets and of margin in those markets. When the purposes of the futures markets and the operation of the futures margin system are taken into consideration, the futures margin requirements are consistent with securities margins in terms of financial integrity protection. First, it should be noted that the 15 percent futures margin level should not, as the Brady Report acknowledges, be compared to the 50 percent initial margin requirement applicable to a purchaser of securities who is a member of the general public, but instead the requirements applicable to professional securities traders. The Brady Report recognizes that securities market makers can invest in stock by posting margin of 20-25 percent. Even this figure, however, may overstate securities margins applicable to professional securities market participants, as stock exchange specialists and other equities market makers are exempt from the Federal Reserve Board's 50 percent margin requirement and are required only to post "good faith" margins which are set by private negotiations between the securities professional and its lender.

Second, the futures margining system is designed to measure the risk involved in each futures transaction and to establish an appropriate margin level based upon market volatility and the type of trading involved in the transaction. This reflects the fact that futures markets are mechanisms for the transfer of risk from a party subject to price risk because of its primary manufacturing, farming or financial operations to a party on the other side of the market or one willing to assume price risk. This system requires that both sides to a trade, the long and the short, make margin deposits, and that all losses and gains on positions be paid daily such that, at settlement, no debt on any futures contract remains outstanding.

Futures margins thus differ substantially from margins in securities transactions. Margin on securities are paid only by purchasers and short sellers, represent part of the price of the security, and are based on an infrequently revised determination of the loan value of the securities purchased.

In securities trading, "margin" refers to the minimum amount that a purchaser of shares of stock must deposit with his broker so that title to those shares passes to the purchaser. The remaining balance owed by the purchaser is borrowed, usually from the broker, and the stock certificates are normally left on deposit with the broker to secure the unpaid balance due on the loan. Futures margin does not represent an extension of credit or result in the passage of title to the commodity, which takes place only in those infrequent instances (less than one percent for all futures contracts) where a party takes delivery on the futures contract and pays the full value of the commodity.

Third, unlike futures margins, securities margins are not designed to cover losses on a daily marked-to-market basis. Consequently, a comparison of initial margin requirements for parallel securities and futures positions may significantly understate the margin required to maintain the futures position at a given point in time. For example, on October 19, a person holding a single long S&P 500 contract for which $10,000 had been posted as initial margin would have had to deposit an additional $50,000 per contract in cash to support that position.

Finally, in the stock index futures market, there is a notable absence of large speculative positions that could be indicative of differential leverage between the stock and futures markets. The CFTC's large-trader data indicate that the S&P 500 futures contract is primarily an institutional market and that its principal users generally do not have leveraged positions. On October 19, 1987, reporting commercial traders 1/ held approximately 70 percent of the total open interest. Most such traders have equivalent offsetting positions, normally in the stock market. In contrast, in mid-October 1987, large speculators, who are subject to speculative position limits in

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1/ Under CFTC regulations, a reporting commercial trader in the S&P 500 futures market is one who has a position exceeding 300 contracts and who has indicated that use of the contract is for hedging or arbitrage purposes.

the S&P 500 futures market as in all futures markets, held less than 5 percent of the total open interest. The Brady Report confirms that "[s]peculation by individual investors appears not to have been a serious problem in the October decline." (Brady Report at 65).

Are commodity markets capable of handling double the volume that they currently handle? In that effort, what is CFTC and the industry doing to address this issue?

Most futures markets appear to be capable of clearing twice the number of transactions that they currently clear. For example, as a result of recent enhancements to their computer capability to meet the Commission's audit trail requirements, the Chicago exchanges have clearance systems capable of handling as much as two-and-a-half times the current number of transactions. These exchanges monitor the volume of transactions throughout the day, and if there are indications of heavier-than-usual volume, emergency procedures can be put into effect. These procedures are generally designed to ensure that clearing firms submit trade data to the clearing organization more quickly throughout the day in order to process the increased volume on a timely basis. Longer processing hours by the exchanges and the clearing firms may also be required in such circumstances.

Most New York exchanges also have the capacity to handle above-average volume. The largest New York exchange in terms of volume, the New York Mercantile Exchange ("NYMEX"), has experienced significant growth over the last few years, almost doubling its volume on a year-to-year basis. The NYMEX average volume so far this year is approximately 130,000 contracts per day. The exchange previously has handled 300,000 contracts in a single day, and is working towards being able to accommodate as many as 1 million contracts per day. NYMEX also plans to implement an on-line system later this year which will allow brokers to verify and correct the details of trades during the day. The Commodity Exchange, Inc. ("COMEX") is in the process of implementing a new clearing system that, when implemented, should increase its ability to handle high volume.

The Commission reviews all clearing and trade processing rule changes proposed by clearing organizations and exchanges, and overseas exchange clearing systems as part of its rule enforcement review program. The Commission also monitors the markets on a daily basis to identify any clearing problems and works closely with the exchanges to resolve any such problems.

The Brady Commission reports that the futures market keeps the market in line and that the futures market is one of the key elements connecting the markets. Given that there is general some [sic] agreement that there is "one market", how do you respond to the NYSE's recently proposed rule that terminates the DOT system whenever stock prices rise or fall more than 50 points. Do you feel this will work towards better communication between New York and Chicago?

The Commission recognizes the need for securities and futures exchanges to develop interim solutions for addressing concerns related to DOT system capacity, excessive price volatility or a perceived loss of public confidence in the securities and derivative markets. Futures exchanges have adopted price limit rules for that reason, and the Commission has approved those rules. The New York Stock Exchange proposal also may be viewed in that regard as a surgical price limit. Under that proposal, if the Dow moves by 50 points, only one type of trading is curtailed--index arbitrage through the NYSE's automated order entry and execution systems.

While the NYSE proposal may be acceptable as an interim response, the Commission believes that any longer term solution needs to be reviewed from an intermarket perspective. The various reports studying the events of mid-October 1987 found that index arbitrage was not the cause of the market break and generally has a beneficial economic effect by maintaining a proper price relationship between the stock market and the index futures and option markets. Therefore, actions to curtail index arbitrage not only raise the cost of this beneficial activity, but because of competitive interests, can hurt relations between securities and futures exchanges. Ongoing discussions between the CFTC and the SEC as well as between futures and securities exchanges are being conducted with that principle in mind.

The **Chairman**. Chairman Ruder, we are delighted, as I said before, to have you here. I thank you again for the time you have spent with me earlier discussing this matter.

STATEMENT OF DAVID S. RUDER, CHAIRMAN, U.S. SECURITIES AND EXCHANGE COMMISSION, WASHINGTON, DC

Mr. **Ruder**. Thank you, Chairman Leahy and other members of the committee for inviting me to testify before you today on the October market break. I have submitted a longer written report which is a report plus an appendix, a report from the Commission staff to me dated March 4, which I ask to be included in the record.

The **Chairman**. Without objection, so ordered.

Mr. **Ruder**. We will also make available to the committee the Commission's staff study, a 900 page report on the October market break, but in keeping with concerns for economy these days I am not asking that it be included in the record.

The **Chairman**. We will note, however, that it is available and that there is a copy at the Senate Agriculture Committee. I know that Senator Bond and Senator Daschle will be eager to rush out and read it right after the hearing. Go ahead, Chairman Ruder.

Mr. **Ruder**. As we all know, the market events of October were very dramatic and historic, and their effects are still being felt. While these events show how resilient our markets are, they also reveal weaknesses. In particular, we now know that new market structures and trading strategies at times can cause volume and volatility that overwhelm the current capacities of our markets.

We have been warned that our modern markets are not working well enough. The weaknesses revealed in October must be corrected, and the Securities and Exchange Commission acknowledges that it has the major responsibility to seek correction of these weaknesses.

I believe that failure to act in light of the October warning would not be an acceptable response. I believe further that coordination and cooperation between the CFTC and the SEC is essential to our task.

I am pleased, therefore, to have the opportunity to appear before this committee which has CFTC oversight responsibility. On February 2, 1988, the Commission staff released its report on the market break, and on February 3, the Commission announced its own conclusions and recommendations which are detailed in my written testimony to the committee.

As a general matter, the Commission recommends concentrating on improving the capacities of the interlinked equities and derivative index markets. The Commission's primary recommendations are to increase the efficiency of automated systems, to increase available capital and liquidity and to increase coordination among markets.

We have urged the reduction of liquidity demands temporarily through margin increases as a desirable interim measure. But we continue to believe that increasing the efficiency of the interlinked markets and improving intermarket coordination offer the most important avenues to improvement of the markets.

Since February, the securities self-regulatory organizations have taken substantial steps to improve the efficiency of their markets. Those steps are detailed in my written testimony. The Commission continues to work with the self-regulatory organizations to ensure further improvements in this area.

Since October, the Commission, the Commodity Futures Trading Commission, Federal Reserve Board and the securities and futures self-regulatory organizations have met and worked hard toward increasing cooperation and coordination.

The agencies and self-regulatory organizations have made progress on emergency planning and communication, and cooperative efforts in other areas continue. The Commission will pursue increased cooperation and coordination as diligently as we will pursue intramarket improvements.

In this connection, the Commission is continuing its review of market conditions and solutions offered by various studies and reports, including examination of the operation of the New York Stock Exchange DOT System, futures market price limits, coordinated trading halts and market openings, short sale restrictions, basket trading suggestions and improved communication of information.

I am hopeful that an agreed solution will be forthcoming as a result of cooperative efforts between the exchanges and between the regulatory organizations. As detailed in my written testimony, during the last month I have been active in seeking improved international coordination and cooperation. I have recently traveled to Japan and to the United Kingdom where I have had useful conversations with a variety of regulators and market participants in those foreign markets. International coördination is another priority area, one to which the Commission will be devoting substantial attention in the near future.

In summary, while October showed market strength, it also revealed weaknesses that must be corrected. The Commission is committed to working with self-regulatory organizations, other agencies, the administration and Congress to maintain the fairness, orderliness and competitiveness of our Nation's securities markets. Thank you, Senator Leahy.

[The prepared statement of Mr. Ruder, appendix A, and responses to questions from Senators Leahy and Daschle, follow:]

TESTIMONY OF
DAVID S. RUDER
CHAIRMAN
U.S. SECURITIES AND EXCHANGE COMMISSION
BEFORE THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY
CONCERNING THE OCTOBER MARKET BREAK

March 17, 1988

I. INTRODUCTION

The October market break was one of the most dramatic events in the history of the U.S. financial markets. The steep and abrupt decline in the markets sent tremors through the investment community and individual investors. On October 21, I directed the Commission's Division of Market Regulation to prepare a comprehensive study of these events. The Commission's Staff Report, released on February 2, 1988, is a thorough account and analysis of the market break. On February 3, in my testimony before the Senate Banking, Housing and Urban Affairs Committee I set forth the Commission's recommendations. I am pleased to present this testimony describing the market break, setting forth the Commission's February 3 conclusions and recommendations, and reporting progress in implementing those recommendations.

II. SUMMARY OF OCTOBER MARKET BREAK

During October 1987, the nation's securities and stock index futures markets experienced an extraordinary surge of volume and price volatility. The most widely followed indicator of the U.S. stock market's movements, the Dow Jones Industrial Average ("DJIA") index of 30 stocks listed on the New York Stock Exchange ("NYSE"), declined on October 20 to its 1987 low of 1708.70. That market low was more than 1,000 points (37%) below the DJIA's August 25 high of 2722.42. After erratic trading over the next few trading sessions, the DJIA stood at 1,994 on October 30, down over 26% from its August high point, although still above its December 31, 1986 level of 1895.95.

The second half of October was marked by extreme volatility and volume:

	DJIA PRICE CHANGE	VOLUME (MILLIONS OF SHARES)
Wednesday, October 14	-95.46	210
Thursday, October 15	-57.61	266
Friday, October 16	-108.35	344
Monday, October 19	-508.32	608
Tuesday, October 20	+102.27	613.7
Wednesday, October 21	+186.84	452

Thursday, October 22	-77.42	395
Friday, October 23	+0.33	247.5
Monday, October 26	-156.83	308.8
Tuesday, October 27	+52.56	260.2
Wednesday, October 28	+0.33	279.4
Thursday, October 29	+91.51	258.4
Friday, October 30	+55.20	303.4

Large price movements occurred to a greater or lesser extent in all of the nation's securities and index futures markets during the second half of October. In particular, prices for the most actively traded index futures — the S&P 500 December futures contract ("SPZ") traded on the Chicago Mercantile Exchange ("CME") — fluctuated even more widely than those for the underlying stocks (termed the index's "cash" price). During the weeks of October 19 and 26, the SPZ futures experienced an unprecedented period of trading significantly below the index stock prices. Although the theoretical value for index futures normally is slightly above the price of the underlying stock (a so-called "premium"), from October 19 to October 28 the normal price relationship between the futures and stocks was inverted. With a few brief exceptions, the futures traded at a discount to the stocks. Although the discount eventually disappeared, by the end of October the price of an SPZ contract had fallen to 259.35, down 24% from its August 25 high of 341.25.

The staff reviewed trading patterns during the period from October 6 to October 21, and reconstructed program trading 1/ activities, including stock index arbitrage 2/ and portfolio insurance. 3/ The staff concluded that no single factor — economic, structural, or psychological — was responsible for the size and breadth of the October 1987 market break. To the contrary, the staff suggests that a variety of factors came into play during the key trading days that affected investment and trading decisions.

1/ Program trading is the trading of a whole portfolio or basket of stocks.

2/ Index arbitrage is the simultaneous purchase (or sale) of stocks that comprise or closely track a stock index and the sale (or purchase) of either futures or options on that index.

3/ Portfolio insurance is a hedging strategy designed to control market risk for a broad based portfolio. Typically, stock index futures are sold when the value of the portfolio decreases a certain percentage, and are repurchased when the portfolio regains this loss. If the futures market becomes congested and too costly, some portfolio insurance plans call for the direct sale of stock to supplement sales of futures.

The staff analysis of trading suggests that the initial decline that immediately preceded the October 19 market break was triggered by changes in investor perceptions regarding investment fundamentals and economic conditions. Although these changes acted as the "trigger," institutional stock selling was the largest single direct factor responsible for the initial opening decline on October 19. Thereafter, panic selling in a broad range of stocks, caused by a variety of factors, coupled with an absence of buyers (except at distressed levels), primarily was responsible for the free-fall decline that characterized the final hour of trading on the NYSE on October 19.

In addition, rapid, large stock and futures sales by institutions, while not the "sole cause" of the market break, were a significant factor in accelerating and exacerbating the declines. On October 19, index arbitrage and substitution 4/ program sales were 37.6 million shares, portfolio insurance sales were at least 39.9 million additional shares, and other program sales were an additional 11.8 million shares. Together they comprised 14.7% of total NYSE volume and 21% of total volume in S&P 500 stocks. During certain critical trading periods, index arbitrage or portfolio insurance — or both — accounted for between 30% and 65% of total NYSE volume in the S&P 500 stocks.

Moreover, during specific critical time periods, total program selling represented an even more significant portion of total S&P 500 stock volume. Between 1:00 and 2:00 p.m. on October 19, the combination of selling from portfolio insurance and index arbitrage totalled more than 40% of volume in the stocks comprising the S&P 500 index, and more than 60% in three different 10 minute intervals within that hour. Portfolio insurance selling in stocks and futures was particularly significant on October 20, with much of that selling being done by a single large institutional investor that executed large portfolio insurance trades in both the stock and futures markets.

In addition to direct effects, the existence of futures trading and the use of derivative products in program trading strategies had a significant negative psychological impact on the markets, particularly on October 19. A market "overhang" effect in both the futures and stock markets, demonstrated by large futures discounts, discouraged buying by market participants. In particular, institutional traders were discouraged from

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4/ Index substitution is the sale of a portfolio of stocks by an institution that owns the portfolio and the substitution for the portfolio with purchases of futures on an index that the institution's portfolio replicates. The strategy is designed to improve the portfolio's performance by capturing arbitrage profits.

participating in the stock market on the buy side, specialists from committing capital to maintain fair and orderly markets, and block positioning firms from maintaining normal levels of activity.

The effects of the October market break have not been confined solely to a one time dramatic change in the level of stock prices. The aftershocks of October 19 have continued to affect the markets. For several months, quote spreads continued to be wider, and liquidity and continuity substantially lower than before the October market break, and market volatility was substantially higher than it was before October. As recently as January 8, 1988, the Dow Jones Industrial Average declined 140 points in one day.

III. COMMISSION'S CONCLUSIONS

Foremost among the conclusions to be derived from the Staff Report is that the markets for stocks, stock index futures, and stock index options form a linked market. 5/ Although the three markets are physically distinct, marketplace boundaries are crossed to such an extent and with such frequency that these markets are unified. This unified market is most clearly evident for NYSE stocks. Stock index futures and stock index options are used as economic substitutes for NYSE stocks, and, under ordinary circumstances, arbitrage links the prices in these three markets.

The conclusion that the three markets are linked does not dictate that the regulations governing each individual market should be identical. The Commission recognizes that each market appropriately has its own distinctive products, regulations, procedures, and systems of trading. 6/ The speed with which capital moves among these markets and the high degree of pricing correlation among them, however, require that regulations governing each individual market take into account the numerous intricate relationships among the markets and the impact that trading in any one market can have on trading in the others.

A second important conclusion is that new trading mechanisms cause extraordinary peak volume and volatility that at times can overwhelm the capacity of the markets. Further, certain institutional strategies increasingly rely upon basket or

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5/ In this respect, the Commission's conclusions are similar to those of the Presidential Task Force on Market Mechanisms. See Report of the Presidential Task Force on Market Mechanisms ("Task Force Report"), at vi.

6/ Cf. Section 11A of the Securities Exchange Act of 1934 ("1934 Act"), which specifically endorses different subsystems within a national market system.

portfolio trading rather than upon judgments as to the investment value of individual stocks. There is nothing intrinsically undesirable about portfolio trading. For large investors, holding a large portfolio of securities is a means of diversifying investments in order to protect against market movements in a single security. When portfolios grow to the size where billions of dollars are allocated to the equity market, an individual stock approach may no longer be a safe or efficient method of equity investing. As a result many large institutions view the equity market as a single investment. Instead of valuing individual securities, they balance their portfolios among equity, debt, and other broad investment categories using stock indexes as a means of investing in equities. The task of setting relative prices among the individual securities that compose the equity indexes is left to other investors.

In addition, the futures market, because of its lower transaction costs (including lower margins), speedier executions, and at times greater liquidity, has become the market of choice for large institutional investors seeking to reallocate or hedge their stock portfolios. Because large portfolio traders may choose to enter the futures market first, and because the nature of futures trading allows futures prices to change more rapidly than their corresponding equity prices, futures prices often lead equity prices. As a consequence of these factors, price discovery for portfolios of stocks now sometimes occurs in the futures markets, with prices transmitted to the stock market either directly through arbitrage or indirectly through the signals created by spreads between the futures and stock prices.

On October 19 and 20 the amount of portfolio selling was so large, and so far beyond the substantial liquidity that is generally available in the futures and stock markets, that market mechanisms adequate for the vast majority of trading situations failed. The serious liquidity problems that became apparent as traders attempted a rapid rebalance of multi-billion dollar portfolios were exacerbated by information failures that made it difficult for traders to estimate prevailing prices and caused concern over the financial stability of major market participants. The combination of intense selling pressure, market mechanism failures, and lack of information exhausted much of the available liquidity, caused substantial uncertainty, drove down prices, and generated unprecedented volatility in all the linked markets. This unprecedented volatility appears to have been greater than can be accounted for by fundamental economic factors. It clearly signals that our capital markets must improve.

While limited price volatility that reflects fundamental changes in buying and selling interest is not inherently bad or damaging to the markets, extreme price movements in short periods of time can have a number of damaging effects. First, extreme price volatility can increase substantially the risk encountered by market makers and may have long term effects on market liquidity. Second, more volatile markets can decrease the ability of broker-dealers to use their capital effectively. To the extent risk of loss increases substantially, firms may be required to maintain greater capital reserves to satisfy both creditors and regulators. Finally, such volatility may make it more difficult for corporations to raise equity capital by decreasing the willingness of the public to invest directly in the stock market.

The two fundamental conclusions — that a unified market exists and that new trading mechanisms can cause extraordinary peak volume and volatility that overwhelm the capacity of markets — suggest at least three types of operational reforms and several regulatory changes. The three types of reforms for the operation of the markets include, first, changes to increase the capacity of each of the individual markets to respond to new market structures and trading strategies; second, changes to improve coordination among the markets; and third, changes that may retard, at least during crisis periods, the increased velocity and volume of intermarket and intramarket trading.

The Commission believes that the primary focus should be on expanding the capacity of the markets through operational reforms and on coordination measures. The Commission recognizes, however, that even with operational reforms and better coordination, it simply is not realistic in the immediate future to expect sufficient liquidity to exist to satisfy liquidity demands created when a $3 trillion market experiences massive and concentrated selling pressure.

Accordingly, the Commission believes that, as temporary supplements to capacity expanding and coordinating measures, it may be prudent to adopt narrowly tailored measures designed to reduce liquidity demands. The Commission believes that the greater leverage available in the stock index futures market may at times contribute to increased volatility and volume and that, therefore, the futures exchanges should reduce the amount of futures market leverage, at least temporarily, by increasing stock index futures margin for non-floor traders. This temporary increase would provide the regulatory agencies time to study whether more permanent reforms might be appropriate. These more permanent reforms might include steps such as emergency increases of margin only for stock index futures selling in a rapidly declining market or direct limits on the pace of institutional sales during a market crisis.

Other regulatory changes also are suggested by the two conclusions of linked markets and increased volume and volatility. These include increased agency authority to deal with market crises and adoption of additional reporting requirements for large trader and program trading transactions. 7/ More fundamentally, these conclusions suggest that consideration must be given to changes in supervisory structures so that all equity-related products are regulated through mandated coordinated regulation, if not by one agency.

A third conclusion reached by the Commission is that there are weaknesses in areas such as specialist and market maker performance, capital adequacy, and clearing and settlement that must be remedied. The Commission is recommending improvements in each of these areas.

A fourth Commission conclusion that emerges based on the Staff Report is that the events of October 19 and 20 dramatically confirmed the internationalization of the securities markets. 8/ Trading in the U.S. markets clearly affects trading in foreign markets, and vice-versa, although the U.S. more often leads than follows other stock markets. In a sense, the market for United States equities can be viewed as including not only the domestic futures, options, and stock markets, but the major foreign markets as well. However, while this interdependence of the world's markets should be recognized, it should not paralyze efforts at domestic reform. Indeed, reforms to maintain the stability and

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7/ As noted in the Staff Report at 3-26, the staff is examining the desirability of requiring broker-dealers to regularly report their program trades. This would facilitate the staff's ability to quickly and accurately reconstruct trading and improve SRO surveillance capabilities. In addition, the staff is examining the possibility of developing a system, similar to the CFTC's large trader reporting system, that would permit immediate identification of large institutions that are not broker-dealers.

8/ The October market break highlighted the growing interconnections among securities markets internationally. The Staff's Report suggests that the major world markets responded quickly and dramatically to each other's price movements and that, for the most part, U.S. markets led foreign markets. These markets included strong, well capitalized markets such as London, where the Financial Times-Stock Exchange 100-Share Index fell 500 points (almost 22%) on October 19 and 20, closing the month at 1749.8, down 26.04%, and Tokyo, where the Nikkei index declines 4456.7 points (16.9%) on October 19 and 20, closing on October 30 at 23,328.91, down 10.31%. As of March 8, 1988, the Nikkei index's value is 25,465.73 and the FTSE 100 index's value was 1,815. The impact of the U.S. market break was even greater on fast growing, more speculative markets, such as the Hong Kong Stock Exchange, which closed operations for a week.

fairness of U.S. markets may well avoid flight from the domestic markets to foreign markets.

IV. COMMISSION RECOMMENDATIONS AND DEVELOPMENTS SINCE FEBRUARY 3, 1988

Since my testimony before Chairman Proxmire and the Senate Banking Committee on February 3, 1988, the securities self-regulatory organizations ("SROs") have taken significant action in certain areas, particularly regarding operational capacity and enhancements and contingency planning and coordination. Indeed, only yesterday, the securities and futures SROs met to discuss enhanced coordination efforts. In addition, I have personally met with a variety of government and industry officials to ensure that efforts to coordinate a regulatory response receive the highest consideration. The following summarizes the Commission's recommendations and steps which have been taken to address these areas. 9/

A. Stock Market Enhancements

The 600 million share volume on the NYSE on October 19 and again on October 20 was nearly double the previous one-day high for trading volume. Prior projections that trading volume on the NYSE would increase steadily from daily averages of less than 200 million shares to daily averages of about 300 million shares have been shattered, and we have been put on notice that systems must be expanded to cope with large volume.

The key to improvement will be expansion of the stock exchange systems that are designed to receive orders electronically from brokerage firms and in some cases to execute these orders automatically. With the exception of basket trades, most of the orders handled by these systems are small orders for retail customers.

The Commission has recommended that the exchanges modify order routing and support systems to improve the efficiency of their systems during peak volume periods and enhance the capacities of their automation facilities so that markets do not falter due to lack of physical capacity. I am pleased to report that a number of the stock exchanges already have increased the number of trades their automatic order routing and execution systems believe they can accommodate, or will do so shortly. All equity exchanges which currently employ order routing and

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9/ The actions by the securities SROs since the October market break are described in more detail in the March 4, 1988, memorandum prepared by the Commission's Division of Market Regulation. See Appendix A.

execution systems believe they have increased their capacities to be capable of processing the volume of orders received during the week of October 19-20 without any problem or delay. 10/ In addition, they also have indicated that they are continuing system enhancement plans to increase further their processing capabilities.

1. DOT Enhancements

The NYSE's Designated Order Turnaround, or DOT, system accounts for over two-thirds of the average daily share volume at the NYSE. In addition to being used to route small orders, DOT is used by institutions to route very large stock orders associated with program trading and index arbitrage. During October 19 and 20, the automated systems on the NYSE were clogged by the increased volume. DOT also is heavily used to facilitate the sale of stock portfolios through program trading. DOT should be expanded not only to avoid printing queues that developed on October 19 and 20, 11/ but also to accommodate block or program trading. 12/

Since October, the NYSE has made improvements to virtually every exchange order processing system. The NYSE has created an Operations Advisory Committee with the objective of synchronizing planning and operational efforts to provide the capacity to handle routinely a 600 million share day by the end of 1988. The NYSE has doubled the number of stocks on electronic display books and

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10/ At the present time, the NYSE, American ("Amex"), Cincinnati ("CSE"), Midwest ("MSE"), Philadelphia ("Phlx") and Pacific ("PSE") Stock Exchanges all have small order routing or automatic execution systems in operation. The CSE is in the process of increasing its system's capacity by 50% and the NYSE has increased its system's capacity already by 50% and notes further enhancement will be in place by June. The PSE states that it has doubled its system's capacity since October and the Phlx also states that it has increased its system's capacity significantly.

11/ *See* Staff Report at pp. 7-21 - 7-23.

12/ *See* N. Katzenbach, *An Overview of Program Trading and its Impact on Current Market Practices* ("Katzenbach Report") (December 21, 1987) at 30. The Commission notes that the NYSE and the other securities markets have increased automation in their markets dramatically over the past 15 years and could not reasonably be expected to predict the extreme peak volumes that occurred in October. Automation enhancements, together with the other measures the Commission is recommending, should help the markets be better prepared operationally for these peaks.

is taking steps to route both market and limit order traffic to the display books via a new communication switch, thus averting backlogs at the universal floor device controller switch ("UFDC") and reducing the number of orders which must physically be printed. In addition, the NYSE has increased substantially the number of printers on the floor and has implemented enhancements to all its printers. By April 1988 the NYSE plans to have completed its upgrading of the limit order system, resulting in a 50% increase in capacity. We also understand that, in response to a General Accounting Office ("GAO") recommendation, the NYSE has agreed to hire an outside entity to examine in detail and assess the NYSE's order routing and other computer facilities.

The DOT system, a key operational link between futures and stock markets, should not encumber market linkage because of technical or capacity problems. DOT capacity should be expanded so that the system can provide continuing market access to both large and small orders, even in times of market stress. In any event, the criteria for cutting off the major means of routing orders to the NYSE floor should not be adopted without regulatory review.

The NYSE has submitted a proposed rule change to the Commission that would restrict, for six months, member firms' ability to use DOT for effecting index arbitrage program trades for customer and proprietary accounts if the DJIA moves from the previous day's close by 50 or more points. 13/ If approved, this rule change would make index arbitrage more difficult after the market moves more than 50 points. For a NYSE member firm to effect index arbitrage trades in these circumstances, it would have to execute the stock transactions through a floor broker. Because this rule change proposal is before the Commission, it would be inappropriate for me to address the merits of the proposal.

2. Market Baskets

The Commission has also noted that the NYSE should consider the creation of posts for trading baskets of stocks. As the Staff Report suggests, the creation of such posts might alter the dynamics of program trading. 14/ While some arbitrage programs would continue to flow directly to the specialists in the

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13/ See File No. SR-NYSE-88-02. Securities Exchange Act Release No. 25400 (February 26, 1988), 53 FR 7273 (March 7, 1988). We also note that, if approved by the Commission, we would expect the NYSE to establish appropriate surveillance procedures to ensure that violations are detected.

14/ See Staff Report at 3-17 - 3-18. The Katzenbach Report recommends a similar measure. See Katzenbach Report at 29.

individual stocks to maintain pricing efficiency, other institutional program trades could be focused on the basket post where the specialist and the crowd, perhaps supplemented by block positioners, could provide additional liquidity to the system. The existence of a basket trading post might help cushion individual stocks from the intraday volatility caused by arbitrage between futures and stocks and nonarbitrage program activity. 15/ The Commission appreciates that there are considerable questions that need to be examined concerning the feasibility and design of basket trading on the NYSE. The Commission recognizes that the ultimate success of this concept depends on the ability of such a trading post to pass a market test in competition with other index-based financial instruments, but it believes that the proposal deserves serious consideration.

Although the NYSE has yet to submit a specific market basket plan, we understand that its staff is currently evaluating the concept. In addition, the Options Clearing Corporation ("OCC"), in conjunction with the Phlx, has submitted proposed rule changes to the Commission that would establish a Cash Index Participation Unit (a so-called "CIP"), which attempts to create a market basket of stocks that investors can buy and sell as a unit. In addition, the MSE has informally discussed creation of stock baskets that would trade as a separate unit on the MSE equity floor.

3. Increased Specialist Capital

It is unlikely that increased levels of specialist capital would alone have prevented the steep price declines that occurred on October 19 and the morning of October 20. It is unrealistic to expect any one group of market participants to have or to commit sufficient capital to retard extraordinary selling pressures in $3 trillion markets. 16/ It is also true that a specialist system designed for a market composed of individual stocks may be strained in a volatile market dominated by portfolio trading. The events of October 19 and 20 demonstrate that the financial position of many specialist firms can become critically strained during a major market break. While specialist capital appears sufficient in normal trading situations, the Commission is not confident that specialist capital is sufficient if the markets are to continue at their present volatility levels. Thus, increased specialist capital may be helpful in any future market crisis by averting situations in which specialists reach the limits of their buying power or are in danger of failing. 17/ For these reasons,

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15/ *See* Staff Report at 3-18.

16/ As the Staff Report points out, starting the week of October 19, NYSE specialists had buying power of over $2.3 billion of capital. *See* Staff Study at 4-54.

17/ *See* Staff Report at 4-58.

minimum specialist capital requirements should be increased. The NYSE, Amex, Phlx, MSE, and PSE all currently are reviewing the adequacy of their respective specialists' capital. 18/

Further, specialists who self-clear should be required either to establish committed lines of bank credit or otherwise to satisfy higher capital requirements. 19/ Over the next several weeks, the NYSE staff will meet with a number of its member firms to discuss their credit and banking arrangements, including the number and types of banking relationships they have and how to improve their ability to obtain financing.

In addition, a private emergency dealer capital fund might be considered. Such a fund could serve as a safety net for the specialist system. 20/ While the details and mechanics of such an approach need careful consideration, the concept merits review.

4. Improved Specialist Performance

The performance of most NYSE specialists was satisfactory on October 19, although instances of questionable individual performance did occur. 21/ Performance on October 20, when risk positions were exceedingly high was generally weaker. Improved performance of individual specialists' affirmative obligations should result in increased commitments of specialist capital. In order to improve specialist performance the NYSE must more vigorously exercise its authority to reallocate specialists' stocks.

The NYSE currently has two mechanisms to reallocate stocks: (1) disciplinary procedures for violations of the specialist's obligation to maintain fair and orderly markets; and (2) reallocation procedures under NYSE Rule 103A based upon quarterly evaluations of the specialist's performance by floor brokers. The

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18/ The BSE, effective December 31, 1987, increased specialists' equity capital requirements from $80,000 to $100,000 and effective June 30, 1988, will increase the requirements to $125,000.

19/ The NYSE also should improve its surveillance of specialist capital. *See* Staff Report at 4-68.

20/ *See* Staff Report at 4-67.

21/ *See* Staff Report at 4-6 - 4-29.

NYSE should not be reluctant to use the disciplinary process 22/ to sanction a specialist in appropriate circumstances for failure to maintain fair and orderly markets. The Commission believes, however, that a vigorous evaluation program under NYSE Rule 103A is critical to improving NYSE specialist performance. The NYSE needs to continue its efforts to improve its evaluation standards and process by adopting relative performance measures. 23/ In evaluating specialist performance the NYSE also should take into account the impact of the futures markets on stock market volatility, particularly at the opening. 24/

The NYSE has proposed to add specific objective standards to measure specialist performance in a variety of areas. This will supplement their current specialist evaluation system which bases performance on specialist evaluation questionnaires ("SPEQ") filled out quarterly by floor brokers. While the NYSE continues to believe relative standard of performance raise difficult issues, it has agreed to review the feasibility and desirability of developing relative measures of performance.

With regard to the recommendation concerning disciplinary action and stock reallocations, the NYSE and Amex have been conducting detailed reviews of individual specialist performance during the October market break. To date NYSE investigations into specialist performance during the market break have resulted in the reallocation of six stocks from five specialist units (the stocks are J.P. Morgan & Co., Gould, Inc., Neiman Marcus Group, E.F. Hutton Group, Inc., A.G. Edwards, Inc. and Carter-Wallace). The NYSE has indicated that it is continuing to review specialist activity during the October market break period, and is focusing particularly on those areas of concern outlined in the Division's Report such as proprietary activity during gap openings (opening at a price significantly away from the previous last sale),

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22/ See 1976 NYSE Report of the Committee to Study the Stock Allocation System. The report suggests that disciplinary proceedings may not be the most effective tool to enforce the specialists' affirmative obligations because those obligations are somewhat subjective.

23/ See Staff Report at 4-28 - 4-29. The Commission also believes that poor specialist performance should weigh heavily against the specialist in allocation determinations for new or reallocated listings. *Id.* at 4-29, note 75. The Commission emphasizes, however, that incentives to obtain new listings are not sufficient to ensure improved specialist performance and that the additional deterrence provided by a vigorous reallocation program is critical.

24/ This problem might be ameliorated by coordinated opening procedures. See Section IV. D. (1), *infra.*

delayed openings, and trading halts. To date the Amex has reallocated two stocks, the Washington Post and Continental Materials Corporation, to new specialist units. 25/

5. Intermarket Circuit Breakers

The Commission believes that individual stock price limits are inconsistent with a continuous auction market concept. Such limits may deprive small and large investors of the ability to liquidate positions precisely when these investors need to do so. Moreover, individual limits may be overbroad as a measure to address marketwide crises because they result in trading halts in individual stocks even in the absence of marketwide problems. The NYSE's existing procedures for order imbalances are generally adequate to address isolated liquidity problems in individual stocks.

The Commission also believes that mechanistic marketwide price limits, under which the entire stock market would close for the day if some market-wide measure exceeds certain pre-set limits, should not be pursued at this time. The limits might be set so high as to be ineffective, or so low as to be unnecessarily disruptive. Moreover, the existence of such limits, rather than calming markets as some have suggested, 26/ might induce panic and accelerate trading as the limits approach. The Commission believes that particularized judgments, based on the actual conditions in the market, are a preferable way to deal with the complicated issues of closing the stock market. The markets should, however, be assured that trading will not be halted absent truly extraordinary circumstances that warrant such intervention.

B. OTC MARKET

During the week of the market break, the prevalence of unreliable quotations, delayed transaction reports, reduced market maker participation, and increased manual order handling, coupled

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25/ The Amex has examined trading in every security traded on the exchange during the market break period. The Amex has identified 70 securities involving 16 specialist units with potentially inadequate performance. The operation of these units has been referred to a Subcommittee of the exchange's Performance Committee for review. Four additional units are also in the process of being referred to the Subcommittee for review. The Amex expects that either disciplinary action or reallocation proceedings will be instituted in a number of the questionable situations identified. The Amex has promised to keep the Commission informed of developments in this area.

26/ *See* the Task Force Report at 66.

with greater telephone inquiries, undermined the liquidity and orderliness of the over-the-counter ("OTC") market.

The OTC market suffered from a combination of extreme downward volatility and unusually high share volume. An extraordinarily high number of locked and crossed markets disabled the automated small order execution systems operated by the National Association of Securities Dealers ("NASD") and by individual market makers, forcing market makers to execute small transactions manually. Because of the difficulty in reaching other market makers by telephone, customer orders often were not executed in a timely manner, not executed at all, or executed at prices that reflected only a securities firm's best estimate of the prevailing market. In addition, market making was mixed, with some firms providing liquidity and others remaining relatively inactive. 27/

The NASD has responded to problems it encountered during the market break by proposing a number of initiatives. These initiatives include raising the penalty for unexcused withdrawals by market makers from NASDAQ; requiring all NASDAQ market makers to participate in Small Order Execution System ("SOES"); providing that SOES executions will continue in an OTC/National Market System security when quotes are locked or crossed; eliminating preferencing of market makers when a locked or crossed market exists; and establishing the Order Confirmation Transaction ("OCT") service that will permit firms to access market makers over the computer without voice contact. 28/

C. Options Exchanges

The options exchanges experienced serious problems throughout the week of October 19 due to extreme volatility in the market for the underlying securities, the periodic absence of useful information concerning the equity and futures markets, and market

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27/ See Staff Study at 9-19 - 9-24.

28/ OCT allows NASDAQ subscribers with Level 3 service to send orders in NASDAQ securities to market makers over the computer, without voice contact and is designed to provide an effective means of accessing market makers in high volume, fast-moving markets. The NASD has filed these initiatives as a proposed rule change (SR-NASD-87-54). The Commission granted temporary approval on a limited pilot basis for 90 days and solicited public comment. See Securities Exchange Act Release No. 25263 (January 11, 1988), 53 FR 1430 (January 19, 1988). Because these proposals are currently before the Commission for permanent approval, it would be inappropriate to comment further at this time.

makers' difficulty in hedging their options positions. The impact of these factors was reflected in the numerous and protracted trading halts; in the fact that prices, or "premiums," charged for option contracts, particularly put contracts, were inconsistent, highly variable, and often unrelated to price movements in the underlying index; and in the unwillingness of some options market makers to foster liquidity by trading on a continuous basis. In particular, the options markets did not provide an effective, continuous market for the most actively traded index options classes at certain times on October 19 and for virtually all of October 20. Accordingly, the Commission believes there are a number of areas that require review by the options exchanges.

First, the exchanges should reconsider the effects of permitting options on indexes of securities to open prior to the opening of some percentage of component securities in the underlying market as well as the effects of continuing trading for a certain time even though underlying component securities are not trading. Second, the options exchanges, particularly the Chicago Board Options Exchange ("CBOE"), should examine methods to accelerate opening rotations. Index option opening rotations were excessively long on October 20, limiting the ability of options customers to receive timely executions. These delays contributed to higher premiums in some options series. Third, the options exchanges and market information vendors should develop a plan to reduce proliferation of options series or to delist options series from vendor quotation services in the event that vendor data base capacity threatens to be outstripped. Fourth, options markets using small order execution systems should revisit their rules governing market maker participation in these systems. Fifth, options exchanges should closely examine the performance of index options market makers, particularly on October 20, to determine whether they met their obligations to maintain fair and orderly markets to the extent practicable. The responses by the exchanges to these recommendations are as follows.

1. Delayed Openings for Index Options

The options exchanges continue to review their current rules that (a) authorize the commencement of index option trading when the underlying stock market opens and (b) permit trading to continue for 90 minutes regardless of the number of component stocks trading. The exchanges also continue to review their rules that require index option trading to halt if securities that account for more than 20% of the index's value are not trading.

2. Modifications to Opening Rotations

The CBOE and Amex also have been reviewing their opening rotations procedures since October. 29/ Since December, CBOE's Standard & Poor's 100 index option ("OEX") opening rotation has been informally modified by dividing OEX series into three groups which then are opened separately and simultaneously. These procedures, combined with recent low volume and volatility levels, have resulted in opening rotations of no longer than 10 to 15 minutes. In February the CBOE Board of Directors approved in principle a plan to divide OEX into seven zones, six of which would be opened simultaneously, with one or more lead market makers charged with establishing opening prices and facilitating imbalances. The CBOE is working with Commission staff to develop an exchange rule filing that would implement this measure.

The Amex also has stated that it is examining the feasibility of introducing an opening rotation in its Major Market index option ("XMI") that would allow for the quick opening of free trading of more actively traded series by first opening the series which qualify for the Amex's automatic execution system, AutoEx. 30/ Upon completion of the opening rotation in the five or six calls and puts that generally are nearest the current index value, AutoEx will be turned on so that it will then be possible to execute market and marketable limit orders up to ten contracts instantaneously. Opening rotations in other series then will proceed in a normal manner.

3. Proliferation of New Option Series

Precipitous market movements create unique problems for derivative options markets that do not necessarily relate to increased trading volume. As the price of the underlying instrument increases or decreases significantly, new option series are added to reflect the current value of the underlying instrument. Moreover, each new strike price added causes the creation of at least four new series, one for each expiration cycle being traded.

In October 1987 this proliferation of new strike prices created capacity problems for vendors who were unable to list all

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29/ The PSE and Phlx also support implementing steps to facilitate completion of opening rotations so that free trading in all series can begin as expeditiously as possible.

30/ AutoEx is an automated execution system that enables member firms to route public customer market and marketable limit orders in options for automatic execution at the best bid or offer at the time the order is entered.

option series. As a result, the options exchanges have encouraged securities information vendors to increase their system capacity. More specifically, the exchanges, through the Options Price Reporting Authority ("OPRA"), have been working with vendors to address current capacity problems, plan for future capacity expansion, increase message capacity, and devise contingency plans for future problems.

In an attempt to limit the proliferation of new strike prices that necessarily accompany dramatic price changes in the underlying instrument, both the CBOE and Amex are considering the possibility of introducing strike prices only at levels immediately surrounding the market price of the index or underlying stock during a dramatic market break. This would reduce the number of new option series that would have to be listed, facilitate the listing of new series by OPRA, and permit vendors to display continuously current quotations for all series.

4. Options Automatic Execution Systems

The Amex and CBOE also currently are reviewing methods to ensure high levels of market maker participation in their automatic execution systems, AutoEx and Retail Automatic Execution System ("RAES"), 31/ respectively, during volatile market conditions. In particular, CBOE is focusing on reducing disincentives to continued participation in RAES and establishing sanctions for leaving the System. To this end, CBOE has submitted to the Commission a proposed rule change that would provide the Exchange authority to require market maker participation in RAES in designated equity options classes under certain conditions. 32/ Similarly, Amex is seeking to broaden registered option trader ("ROT") participation in its AutoEx system at the present time. 33/

5. Option Market Maker Performance

A special panel of CBOE members and persons associated with CBOE member firms has reviewed October 20, 1987, OEX pricing. The

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31/ RAES is CBOE's automated execution system. It executes public customer market and marketable limit orders at the best bid or offer at the time the order is entered.

32/ See SR-CBOE-88-3.

33/ Neither the PSE nor the Phlx currently has an automatic execution system for options orders. The Phlx, however, has indicated to the Commission staff that it expects to submit a proposed rule filing in the near future that would establish a pilot program in which the Phlx would introduce an automatic execution system for a limited number of equity options.

panel report characterized options pricing on the morning of the 20th as extreme but understandable in light of the chaos and extreme volatility then prevailing in all markets. The CBOE notes that as a "goodwill gesture" it will make refunds to member firms based on the difference between the premiums actually paid by public customers for certain November OEX options during the market break and the prices they would have paid if premiums had been based on an implied volatility of 300. The total amount to be paid (approximately $1.2 million) will be recovered through a voluntary contribution of $.01 per contract on market makers' future OEX transactions. As a result of a number of customer and member firm complaints, the CBOE regulatory staff also is reviewing market maker performance during the market break, with special emphasis on October 20. The CBOE expects to complete this review in the near future.

The Amex has noted that upon review of XMI trading on October 20, 1987, it was unable to conclude that overall specialist and ROT performance constituted a course of dealings that the Amex believed was fair and orderly. More specifically, the Amex found that various XMI put transactions involving the specialist unit were not priced fairly. The Amex admonished the specialist for substandard performance and noted that any recurrence would result in a reallocation. The Amex also specifically instructed the specialist to develop a plan that would ensure adequate performance in the future and prevent a recurrence. Similar to the CBOE, the XMI specialist and member firms representing customer executions will make certain refund payments for XMI options priced excessively during the market break. The Amex determined that XMI options with a volatility factor exceeding 325 were priced excessively.

D. Clearance and Settlement

During October 1987, clearing agencies, broker-dealers, and securities markets cooperated successfully to compare, clear, and settle unprecedented sustained daily trading volume. Although the volume placed tremendous strain on personnel and systems, approximately 95% of the trading volume was cleared and settled within routine time frames. Volume and record price volatility also dramatically increased the financial risk to clearing agencies and their members. Although some losses were suffered, clearing agency safeguards were effective in preventing significant or widespread losses.

The record volume and volatility suggest, however, the need for improvements in two primary aspects of the clearance and settlement process: post-execution trade processing; and clearing agency safeguards against member default.

The NYSE, Amex, and NASD should consider accelerating efforts to compare all trades on the trade date. Currently, over 50% of share volume is compared through two-sided traded input that results in compared trades several days or longer after the trade date. The October 1987 experience indicates that the current two-sided comparison process cannot be completed fully on a timely basis when sustained daily trading volume becomes extremely high. Automated clearing and settlement systems should be expanded to facilitate comparison at or near the time of trade execution.

Since October, the NYSE has indicated that its Operations Advisory Committee is working on (1) a shortened comparison cycle and (2) an automated Questioned Trade process and, further, that the exchange is developing an electronic Floor Derived Comparison ("FDC") system to accomplish these objectives. The NYSE plans to implement FDC in three phases during 1988. The Amex also has begun development of electronic systems that would allow same day floor-derived point of sale comparison for both equities and options and that it currently plans to begin their implementation during the last quarter of 1988. Finally, as discussed previously, the NASD has implemented its OCT service on a pilot basis. In conjunction with SOES and the Trade Acceptance and Reconciliation Service, implementation of OCT should provide an almost total same-day comparison capability for the NASDAQ market.

Individual clearing agencies also should consider a variety of enhancements to their risk management systems to reflect increased risks resulting from increased price volatility and trading volume. Those considerations should include enhanced member monitoring systems to enable clearing agencies to obtain better and more up-to-date information about members' financial strength, activity in other markets, and customer activity. Clearing agencies also should consider whether risks posed by individual members require increased capital requirements or the deposit of additional assets with the clearing agency.

Options clearing systems and market participants also should reexamine safeguards and consider improvements. As demonstrated in October, equity price volatility can generate geometric increases in options price volatility. The Options Clearing Corporation ("OCC") should enhance member monitoring techniques in order to provide better early warning of risks and it should increase measures to guard against those risks when they appear. Additionally, basic volatility assumptions and margin formulas should be reassessed. When OCC margin is insufficient to cover intra-day volatility, OCC resorts to variation margin calls to protect itself. Events in October suggest that OCC should reassess the manner and timing of variation margin calls to determine whether it can obtain earlier warning of and protection from potential member insolvency, especially for volatility that occurs late in the trading day near the close of banking hours. Finally, as noted below, initiatives to achieve a more coordinated credit, clearing, and settlement system across markets should have a very high priority. 34/

IV. The Stock Index Futures Markets

Under the current regulatory scheme, initiatives to improve the operation of the futures markets are for the most part the responsibility of the Commodity Futures Trading Commission ("CFTC") and the relevant contract markets. Nevertheless, the operation of stock index futures markets has a substantial impact on the operation of the stock markets, as dramatically demonstrated during the market break. It is appropriate, therefore, for the Commission to discuss changes to the futures markets that might help improve futures market liquidity and alleviate, to some extent, the transmission of massive selling pressure to the stock markets.

A. Capacity Expanding Measures

The Commission believes that the creation of block trading procedures, similar to those used in the stock markets, might allow the futures markets to accommodate futures blocks in a more liquid and orderly way. 35/ In the listed stock markets, blocks generally are negotiated upstairs and then crossed on the floor, using specialized procedures to give priority to public limit orders without allowing the crowd or the specialist to interfere unduly with the cross. 36/ The effect of such a procedure is to allow block sales to be accomplished without causing severe price disruptions. Block trading procedures offer significant potential efficiencies for futures trading, and should be examined. If concerns are raised regarding the Commodity Exchange Act's ("CEA") prohibition against prearranged trading, 37/ legislative changes should be considered.

34/ Attention to clearing problems in the futures markets also should have a high priority. See Task Force Report and CFTC Staff Follow-up Report on Financial Oversight of Stock Index Futures Markets During October 1987 (January 6, 1988).

35/ The Commission notes that a "sunshine trading" rule proposal by the New York Futures Exchange that would have a similar purpose is pending before the CFTC. See 52 FR 2575 (January 23, 1987).

36/ See NYSE Rule 127.

37/ See, e.g., CEA Section 4c, 7 U.S.C. Section 6c; 17 CFR 155.2(f).

B. Reducing Liquidity Demands

As discussed at the outset, the Staff Report, as well as the President's Task Force Report, suggests that new trading strategies and market structures are creating greater volume and velocity of trading and imposing greater liquidity demands on the futures and stock market places. Until the capacity of these markets expands sufficiently, measures to reduce sudden peak demands placed on the markets by new trading strategies and market structures should be considered.

1. Margin Requirements

Futures products enjoy greater leverage in part because they are cash-settled and have lower margins. 38/ This greater leverage permits major long futures positions to be established with relatively small initial capital. This greater futures leverage also permits the rapid liquidation of large positions in the futures market, or at least encourages the perception that such rapid liquidations may be possible.

In simplest terms, an example may help to highlight the differences between futures and stock margin. If an institution purchases $1 million worth of stock, it generally will pay the full $1 million within 5 days, although, if permitted by its charter to trade on margin, it only would be required to post $500,000. In contrast, if that same institution sought to purchase $1 million worth of S&P 500 futures, it only would be required to post $133,200, 39/ although it would be subject to daily variation margin calls.

The extent to which high futures market leverage contributed to the market break is uncertain. Nevertheless, there is sufficient concern about high futures leverage, and, as a corollary, serious overestimates of the degree of liquidity in the futures markets, to warrant temporary increases by the futures exchanges in initial margin levels for stock index futures for market participants, other than non-floor traders (called futures locals). 40/ A temporary margin increase for a specific class of traders could be effected by agreement of the futures exchanges.

38/ *See* Staff Report at 3-19 - 3-20.

39/ This hypothetical assumes the S&P 500 futures is trading at 270 and that the initial speculative margin is $18,000.

40/ A "futures local" is roughly comparable to a floor trader on an Exchange floor.

A temporary increase would permit additional opportunity to review the effects of different margin levels in the stock and futures markets. 41/ It also would provide an opportunity to evaluate any resulting loss of futures market liquidity during periods of normal activity. In addition, the costs or benefits of more limited margin changes -- such as increasing initial margin requirements in times of extreme downward price volatility for futures sales only — could be considered.

In recommending temporary margin increases for futures trading the Commission is not suggesting that the level of initial margin on stock index futures be raised to the same level as initial margin on equities. The Commission does not believe that equivalent margins are necessary. The mark-to-market requirements for futures dampen leverage by requiring future traders to have cash available to meet margin calls during periods of high volatility. Because of this existing dampening effect, margin levels on stock index futures for non-floor traders should be increased by the futures exchanges only to make them comparable to levels available in the stock market for market professionals, levels which are approximately 20-25%. 42/ At the same time, however, in the securities markets the only entities receiving 20-25% margin treatment are specialists or market makers in their designated securities. Institutions that purchase securities on margin must provide, at a minimum, 50% of the purchase price. That same institution effecting a stock index future transaction, however, is required to deposit only $18,000 for a speculative position or $10,000 for a hedged position.

41/ Because the underlying concern is leverage, the leveraging effects of cash-settlement and the costs and benefits of requiring physical settlement also should be evaluated. See Staff Report at 3-19 - 3-20.

42/ Regulation T and Regulation U of the Federal Reserve Board provide that specialists on the floor of an exchange and OTC market makers may obtain loans collateralized by their specialty or market-making securities on a "good faith" basis, without regard to the normal margin requirements. The loans may be obtained either from another broker-dealer or from a bank. The banks and broker-dealers usually require margin in the 20-25% range as collateral for these loans. At current index levels (@ 270), the value of one S&P 500 stock index futures contract is $135,000, and 20% initial margin would be $27,000. The current margin requirement for this contract is $18,000 (13.33% of the contract's value) ($10,000 for hedgers). Effective March 9, 1988, the CME increased initial speculative margin from $15,000 to $18,000. Hedge and maintenance margin, however, remain at $10,000.

The Commission recognizes that higher margin requirements will increase the cost of futures trading. Moreover, selling by futures locals does not appear to have been a significant factor in the market break. Thus, the Commission is not recommending that initial margin increases apply to futures locals. Since lower margin requirements for market makers enhance market liquidity, the margins for locals should continue to be based upon levels designed by the futures exchanges to protect the clearing agencies from default. 43/

2. Restrictions on Large Rapid Liquidations

Another means to reduce temporary peak demands on liquidity that the market currently cannot absorb would rely on procedures analogous to the bracketing procedure employed by the Chicago Mercantile Exchange ("CME") during the week of October 19. In situations of particular market stress, the CME "began to limit requests by major market participants for higher levels of position exemptions. . . . [T]his action allowed the CME to examine each request to execute a substantial volume against the ability of the market to absorb such volume at one time without dramatically and perhaps artificially affecting prices." 44/ In addition, "[t]he CME also required larger hedgers to spread their sell orders out across time brackets, thus reducing the potential concentration of these orders." 45/

43/ Immediately following the market break, the options exchanges filed proposed rule changes, which the Commission approved, increasing index margin requirements for short index positions to 100% of the premium plus 10% of the index value. The previous requirement was premium plus 5% of the index value. In addition, on February 29, 1988, the options exchanges met with SEC staff to discuss additional margin proposals in detail. These proposals include, among other matters, the possibility of increasing index and equity options margin to premium plus 15% and premium plus 20%, respectively, as well as establishing procedures to reevaluate existing margin levels on a quarterly basis. The Commission expects to receive final proposals soon.

44/ Miller, M.H., J.D. Hawkes, Jr., B. Malkiel, M. Scholes, Preliminary Report of the Committee of Inquiry Appointed to the Chicago Mercantile Exchange to Examine the Events Surrounding October 19, 1987, Dec. 22, 1987, at 52-53.

45/ The CME concluded that the "'bracket rationing' effect of tightening position limits on an emergency basis appeared to have an ameliorating impact in allowing the CME to regulate the flow of large sell orders." Id. at 53.

This approach may deserve consideration if applied equitably across all capital markets and very carefully restricted so that it applies only in rare situations when cooperative behavior by potential sellers, to avoid large, clustered sell orders that rapidly exhaust liquidity, is in the best interest of the markets and of those traders as a group. Such bracketing procedures could be fashioned to affect only large hedgers and only after tangible indications that liquidity is relatively scarce. Significantly, unlike price limits on trading halts, they would permit continuing liquidations, but in a more orderly manner. Also, as noted, they would not limit small transactions.

In addition to its similarity in concept with the "bracket rationing" adopted by the CME during the market break, such an approach would be similar to the exercise limits that currently apply in the options markets. 46/ Reducing the ability of large institutions to liquidate large positions over short periods of time would discourage portfolio insurers and other large traders from assuming that large positions can quickly be revised at low cost. Thus, it would deflate "illusions of liquidity" 47/ and could reduce liquidity demands. Requiring a more orderly liquidation of positions may also contribute generally to the perceived orderliness of markets.

On the other hand, such a restriction would not address rapid selling by a wide group of institutions none of which singly might be selling enough to trigger the restriction. The Commission believes the costs and benefits of this suggestion for spreading out liquidation of large hedging positions merit careful review.

C. Customer Protection

The market relationships dramatically revealed during the market break demonstrate the need for common protections in these markets against "frontrunning." Frontrunning generally involves trading a stock, option, or future while in possession of non-public information regarding an imminent block transaction that is likely to affect significantly the price of the stock, option, or future. 48/ The securities exchanges expressly

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46/ Options exercise limits restrict the number of options contracts that may be exercised over a five day period. See, e.g., Chicago Board Options Exchange Rule 4.12.

47/ See Task Force Report at 57.

48/ As a matter of policy, the Commission does not comment on the existence or absence of investigations.

prohibit frontrunning. 49/ The futures markets do not have rules directly prohibiting frontrunning, although the Commission understands that the CFTC and futures markets believe that the CEA and exchange rules prohibit frontrunning in the futures markets. 50/ To prevent firms trading against the interest of their customers, this prohibition should be made express, strengthened if necessary, and effectively enforced. In this regard, the Commission is committed to working with the CFTC as well as the futures and securities SROs to ensure that adequate intermarket information is available to pursue such matters.

D. Intermarket Coordination

1. Coordinated Openings and Closings

The events of October suggest the need to consider greater coordination between the stock and futures markets to deal with disparities and instability, particularly at openings and closings.

During the market break, pricing disparities and instability were particularly acute at the openings. With the futures markets contributing to price discovery, this point of stress is likely to remain even if measures to expand markets and limit large liquidations are put in place. Allowing futures to open before stocks 51/ can put great stress on specialists, as shown by the openings on October 19 and 20. If index futures open at a large discount to the opening cash index prices, 52/ a specialist in an individual stock is unlikely to absorb imbalances aggressively because the discount implies that prices of stocks will go down. 53/ The discount may also exacerbate any sell pressure otherwise existing in the stock market.

49/ See, e.g., CBOE Circular No. 23, revised July 1987; and Staff Study at 3-30.

50/ See Staff Report at 3-31.

51/ One stock index futures contract, the Chicago Board of Trade's Major Market Index contract, opens 15 minutes before the NYSE. In addition, in times of market stress, the futures will open before stocks are opened in the specialist system because stock index futures open immediately without price stabilization efforts.

52/ These prices will be based upon the previous day's closing prices and the prices of stocks that open quickly.

53/ When there are large discounts, arbitrageurs usually will buy index futures and sell baskets of stocks comprising the index. See Staff Study at 1-4 - 1-5.

To the extent that non-simultaneous openings are determined to be a problem, one remedy might be to delay the opening of index futures until a certain percentage of the underlying stocks can be opened. 54/ Such an approach could be supported on the rationale that both markets should open for trading simultaneously. The futures markets should not trade an index until that index is also effectively trading in its cash amount. There are conflicting considerations involved in the proposal, however, that must be balanced. It has been argued, for example, that delayed index openings prevent futures from playing a price discovery function. Accordingly, the Commission believes that the issue of delayed openings merits further evaluation before recommendations can be made.

Similarly, measures to coordinate or impose market closings also require further consideration. Authority already exists in both the stock and futures exchanges to close the markets if conditions warrant. Stock exchanges also have power to close trading on individual stocks if conditions warrant. These powers should be retained. Additionally, halting trading on futures or stock markets temporarily if a certain number of stocks are closed, or closing both markets temporarily if a market-wide price or volatility index reaches preset levels, may increase information flows, alleviate credit concerns, reduce panic, and provide time for contra-interest to enter the market. Such actions, however, could exacerbate uncertainty, cause a rush to sell in anticipation of the halt, and limit the ability of investors and traders to eliminate risk by closing out positions. Thus, the effects of imposing individual or coordinated market closings need further review before recommendations can be made. 55/

2. Coordinated Credit, Clearing, and Settlement

The Commission believes that a more coordinated credit, clearing, and settlement system across markets would be beneficial. 56/ Such a system would decrease uncertainty about total risk exposures of participants in the stock, options, and

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54/ The CFTC has approved a rule change by the Chicago Mercantile Exchange to halt trading in the S&P 500 future for a brief period if the future moves five points in the first 10 minutes of trading.

55/ For the reasons discussed below, the Commission does not believe price limits, which close trading for the day after a certain price is reached, are advisable for stocks, either individually or marketwide.

56/ *See* Task Force Report at 64.

futures markets, and would facilitate the more efficient flow of credit between markets, thus improving liquidity. In particular, the SEC and CFTC, in conjunction with the stock, options, and futures clearing corporations, should immediately develop measures to coordinate credit, clearing, and settlement for market professionals involved in securities, options, and futures market activity. While there are practical obstacles that need to be resolved, the benefits are substantial, and progress on such initiatives should have a very high priority.

V. Regulatory Authority and Structure

A. Emergency Authority

The Commission believes that it needs authority, in addition to that provided by Section 12(k) of the 1934 Act, 57/ to take a variety of steps in a market emergency. The Commission contemplates that the SROs will remain the primary decision makers in an emergency. The SROs have first hand knowledge of the conditions in their markets and can be expected to act responsibly. Nonetheless, in light of new trading strategies and market structures, the Commission should have the authority, roughly equivalent to the CFTC's current emergency authority, to act in an emergency to implement a variety of measures, including margin changes, delayed openings, early market closings, and temporary trading halts. 58/

The Commission already has begun discussions concerning a coordinated emergency plan with the CFTC and the Federal Reserve Board. While ultimately the Commission believes that the solution in this area, as in other intermarket areas, may be more formal regulatory consolidation, 59/ in the near term the expansion of the SEC's emergency powers and continued efforts at interagency planning are necessary short-term objectives.

57/ 15 U.S.C. § 78l. Among other things, Section 12(k) authorizes the Commission, with the President's approval, to suspend trading on all exchanges or OTC in non-exempt securities for up to 90 days under certain circumstances.

58/ *See* Section 8(a)(9) of the CEA, 7 U.S.C. § 12a(9). Section 8(a)(9) empowers the CFTC to direct contract markets to take appropriate action to maintain or restore orderly trading, including increasing margin, whenever the CFTC believes an emergency exists. An emergency is defined generally as a situation in which market disturbances prevent the market from accurately reflecting supply and demand.

59/ *See* Section V.B.2., *infra*.

B. Regulatory Coordination and Consolidation

1. Background — SEC/CFTC Accord

In December 1981, the SEC and the CFTC announced the SEC/CFTC Jurisdictional Accord ("Accord"). The Accord resolved certain jurisdictional issues raised by the introduction of new derivative financial products into the marketplace. The Accord, which was enacted into law in 1982 and 1983, allocated between the two agencies jurisdiction over derivative financial instruments such as options, financial futures, and options on financial futures.

A major goal of the Accord was to avoid the possibility that competing new options and futures products could be subject to significantly different regulation. In addition, it appeared possible that CFTC approval of the stock index futures proposals that were before it would introduce products into the marketplace that could, by avoiding SEC regulation, lead to possible manipulation of stock prices.

Another critical area of the Accord involved the question of jurisdiction over futures on indexes of corporate securities. The SEC was concerned that futures indexes, particularly narrow-based indexes, could be used to evade the SEC's regulatory scheme and, in particular, that trading in them could result in price manipulation and could provide an incentive for manipulation in the underlying securities. The Accord legislation attempted to address the SEC's concerns by providing that the CFTC would authorize trading in futures, or options on futures, only on indexes of corporate debt or equity securities that are (1) settled in cash, (2) not readily susceptible to manipulation, and (3) broad-based and widely published.

In addition, the Accord legislation provided the SEC a significant role with respect to the review of applications for the designation of contract markets for the trading of index futures. The CFTC may not approve an application received after December 9, 1982, if the SEC determines that the application fails to meet the minimum statutory qualifications just mentioned.

Thus, the Accord criteria for stock index futures have the limited purposes of addressing manipulative concerns and preventing evasion of the regulatory structure applicable to the securities markets.

2. Implications of Market Changes Since 1982 60/

The stock, options, and futures markets have changed fundamentally since 1982 when the Accord was signed. The markets are linked to a degree that was not anticipated at the time of the Accord. At the time of the Accord, it also was not anticipated that the stock index futures markets would have the dominant price discovery role. In light of these fundamentally changed circumstances, the current regulatory scheme needs modification. Neither as a matter of regulatory efficiency nor as a matter of public confidence does it make sense to maintain separate authority over the stock index futures and the stock markets. Thus, we agree with the President's Task Force and Katzenbach Reports that regulatory authority over these markets should be more coordinated or perhaps united. 61/

The Commission recognizes that futures products and stocks trade in different systems and that the regulations governing these systems cannot be identical. Nevertheless, as the Staff Report demonstrates, the primary use of stock index futures by most institutions is to execute transactions in which futures are used as a direct substitute for buying or selling a basket of stocks. 62/ When a derivative stock product trades in markets that are linked with and have substantial impact upon the markets for stocks, the operation and rationale for the derivative product market itself provides a basis for regulation that is coordinated with the underlying equity market. 63/

60/ Commissioners Grundfest and Fleischman do not join in parts V.B.2. and 4. of the Commission's testimony to the extent they suggest that improved coordination is not the appropriate approach to intermarket regulatory issues and that the Commission alone possesses adequate and responsible expertise.

61/ See Task Force Report at 59; Katzenbach Report at 31.

62/ As the Commission's regulation of standardized stock options markets since 1973 proves, the fact that futures are different from stocks does not mean that it would be more efficient to continue to develop separate expertise in these products through separate regulators. Moreover, as has been proved by the SEC's regulation of both the OTC and exchange markets since 1938, differences in trading systems are not an obstacle to effective consolidated regulation.

63/ The markets for stock, stock index options and stock index futures are so linked that the regulation of all three must take into account the capital formation purposes of our national equity markets.

3. Coordination

As a first step, the agencies must increase their coordination of regulation over these united markets. The Commission and the CFTC already have agreed to initiate and have initiated steps to coordinate regulation of the stock, options, and futures markets, and to coordinate credit considerations relevant to those markets with the Federal Reserve Board. This coordination should continue on an expanded basis. Specifically, the Commission urges three steps, some of which already have been initiated.

First, the SROs for the stock, options, and securities markets should coordinate in order to initiate joint plans to meet volatility problems. Their meetings should be attended by staff members of both the Commission and the CFTC.

All the markets support the need to develop better intermarket cooperation in some form. The following list sets forth the recent initiatives that have taken place to develop contingency plans for a market emergency.

- On January 11, heads of the SROs met at the NYSE to discuss methods of improving communications.
- On February 10, heads of the Chicago Mercantile Exchange ("CME") and NYSE met with Chairman Ruder of the SEC, and Acting Chairman Hineman of the CFTC.
- On February 24, all exchanges, including equity, options, and futures markets, met in New York to consider various issues in cooperation and sharing of information.
- On March 16, all exchanges, including equity, options and futures markets, the Commission, and the CFTC, met to discuss issues relating to inter-exchange coordination and information sharing.

Second, the Commission and the CFTC have directed their staffs to meet in order to review the various regulatory proposals made by the Commission, the CFTC, the Presidential Task Force, and others which affect the markets supervised by them. The Chairman of the Commission and the Chairman of the CFTC should review the results of these meetings, and take steps necessary to implement the recommendations and, where necessary, to resolve differences. On several occasions in February 1988, I and senior Commission staff met with Acting Chairman Hineman and his senior staff to discuss these issues and attempt to resolve differences. I expect to be meeting in the near future with Chairman Gramm to pursue further these matters.

Third, consultation by the Commission and the CFTC with the Federal Reserve Board and the Federal Reserve Banks of New York and Chicago regarding credit, capital, and liquidity matters should continue. In February I met with Chairman Greenspan, Chairman Gramm, and Commissioner Hineman to discuss these issues.

4. Consolidation

The increased linkage of stock index futures and stock markets indicates that greater interagency coordination may not be enough and that more formal regulatory consolidation is necessary. The Commission believes that attempted coordination of regulation with respect to equity-related products may produce irreconcilable disagreements and that measures to resolve disagreements between the Commission and the CFTC must be created by new legislation.

The Commission does not believe that it is desirable to provide the Federal Reserve Board with jurisdiction over significant intermarket matters. The Federal Reserve Board lacks the necessary expertise regarding both equity and futures markets. Giving it jurisdiction over intermarket matters would require the Board to duplicate the SEC's existing expertise regarding these markets. 64/ A more efficient and practical intermediate step would be to provide the SEC, the agency with expertise and direct responsibility for the equity markets, final regulatory authority for equity-related products, with respect to critical "intermarket" decisions such as coordinated trading halts, anti-manipulative and frontrunning rules, and other matters. In addition, the Commission's present authority to review proposed index futures contracts to ensure that they are not susceptible to manipulative activity should be expanded to include review of both new and existing contracts and to permit consideration of the impact of these products on the maintenance of fair and orderly stock markets and investor protection.

The Commission believes that limited power vested in the SEC to resolve agency disagreements may be adequate. The October market events dramatically reaffirm, however, that the stock index futures markets have become part of a single larger market that is currently subject to SEC and CFTC regulation. These events suggest that the most logical and efficient result would be the regulation of these markets by the SEC. The Commission currently has the responsibility and expertise regarding the underlying equity markets and, through its cooperation with the CFTC, its review of stock index futures under the Accord, and its various

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64/ The Board clearly does have the necessary expertise for margin regulation, and would be an appropriate agency to have authority over margin for all equity-related products, including stock index futures.

studies of index arbitrage and portfolio insurance trading, has acquired substantial expertise in futures markets. It is the agency most capable of exercising overall regulatory power.

5. International Coordination

The October market break provided dramatic confirmation of the internationalization of the global markets, although at the same time it emphasized the continuing leadership of the U.S. markets.

The Commission, for several years, has pursued actively greater cooperation and coordination with foreign regulators in a variety of ways, including negotiation of bilateral enforcement agreements and participation in multilateral forums such as the International Organization of Securities Commissions. The Commission believes that the October events underscore the need to continue and, indeed, to intensify these efforts. 65/

In addition, the inter-relationship of the world's securities markets underlines the importance of enhancing the safety and efficiency of those markets. The Commission intends to respond to these developments by working with other regulators to develop trading, clearance and settlement linkages, international trade and quote mechanisms, and adequate financial oversight systems.

In this regard, I have just returned from Tokyo and London, where I had constructive conversations with Japanese and U.K. regulatory officials about the need for greater coordination. While in Japan and the U.K., I stated that the key to sound international capital markets is to adapt the best rules and policies of all nations to new market structures and trading strategies. In that regard, I recommended that the following regulatory principles be considered by market regulators throughout the world:

1. Sound standards for disclosure, including mutually agreeable auditing and accounting standards;

2. Promotion of market fairness, including prohibitions against insider trading, market manipulation, and misrepresentations to the market place;

3. The widespread availability of quotation and price information;

4. Efficient and compatible national and international clearance and settlement systems;

65/ In this connection, we note that Senator Riegle has made similar recommendations.

5. Broker-dealer registration qualifications and conduct requirements designed to promote integrity and honesty in the profession;

6. Improvement of capital adequacy standards in order to provide greater stability and liquidity for national and international markets; and

7. Establishment of international surveillance and enforcement agreements.

VI. PREVIOUS RECOMMENDATIONS PRESENTED TO THE SENATE BANKING COMMITTEE NOT SPECIFICALLY DISCUSSED

I also briefly would note that when I testified before the Senate Banking Committee on February 3, 1988 I discussed several Commission recommendations that I have not described in this testimony. The Commission continues to consider a variety of recommendations involving the issues listed below.

(1) Reassessment of the capital adequacy of upstairs firms;

(2) Modifications to the Intermarket Trading System;

(3) Reevaluation of the short sale rule in light of contemporary market conditions;

(4) Reporting program trades to the consolidated tape as they occur; and

(5) Reporting of program and other large trading activity to the SROs and the Commission for surveillance purposes.

VII. CONCLUSION

The events of October and since have demonstrated both the remarkable resiliency of our markets and the need to make improvements. The Commission will continue to work with the SROs, the CFTC, the FRB, the Administration, and the Congress to maintain the fairness, orderliness and competitiveness of our markets.

APPENDIX A

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
MARKET REGULATION

MEMORANDUM

March 4, 1988

TO: Chairman Ruder

FROM: Richard G. Ketchum, Director
Division of Market Regulation

RE: Implementation of the Division's and the Commission's Recommendations regarding the October Market Break

This memorandum summarizes self-regulatory organization ("SRO") actions to date in response to recommendations in the Division of Market Regulation report, The October 1987 Market Break ("Report") and the Commission's recommendations as contained in your February testimony before the Senate Committee on Banking, Housing and Urban Affairs. These recommendations concerned, among other things, contingency planning, operational capacity, specialist or market making performance, and capital adequacy.

In light of our monitoring and oversight responsibilities, the Division recently requested that the various markets inform us of their efforts to implement these recommendations. The following summaries describe the areas in which the markets have made substantial progress or reached a common understanding. As the following summaries indicate, significant action has been taken among the markets in some areas, particularly regarding contingency planning and coordination and operational capacity and enhancements. Although we are supportive of the SROs efforts to date to respond to our recommendations, we believe that the SROs must continue to devote their time to analyzing the recommendations and taking appropriate action. In addition, the SROs are continuing to discuss the broader market issues raised in the Division's Report and the Commission's testimony.

The following discussion first sets forth the recommendation and then each market's response.

I. Contingency Planning and Information Sharing Among the SROs

All the markets support the need to develop better intermarket cooperation in some form. The following list sets forth the recent initiatives that have taken place to develop contingency plans for a market emergency.

- On January 11, heads of the SROs met at the New York Stock Exchange ("NYSE") to discuss methods of improving communications.
- On February 10, heads of the Chicago Mercantile Exchange ("CME") and NYSE met with Chairman Ruder of the SEC, and Acting Chairman Hineman of the CFTC.
- On February 24, all exchanges, including equity, options, and futures markets, met in New York to consider various issues in cooperation and sharing of information.
- On March 16, all exchanges, including equity, options, and futures markets, the Commission, and the CFTC, will meet to discuss issues relating to inter-exchange coordination and information sharing.

In addition to these joint efforts several independent initiatives have been made by some exchanges. For example, the NYSE has established an Operations Advisory Committee that meets several times each week. The immediate objective of the Committee is to ensure that the NYSE and the industry can function effectively on the next 600 million share day. The NYSE has indicated that the Committee's intermediate goal is to be prepared for the first billion share day by 1989. The Pacific Stock Exchange ("PSE") has also established a Contingency Planning Task Force. The Task Force's primary objective is to improve both internal and external communications when a market disruption occurs. This includes formalizing internal procedures to communicate effectively within the staff and with other markets, the SEC, members and public customers, the news media and the general public. The PSE also is sponsoring a meeting with the other regional markets on March 28 to discuss, among other things, specialist capital requirements, intermarket trading systems performance, communication linkages and contingency planning for market emergencies.

II. Stock Exchanges

A. Specialist Performance

1. The NYSE should develop relative, objective standards for evaluating specialist performance.

The NYSE has proposed to add specific objective standards to measure specialist performance in a variety of areas. This will supplement their current specialist evaluation system, which bases performance on specialist evaluation questionnaires ("SPEQ") filled out quarterly by floor brokers. The Commission staff is currently reviewing this proposal. As detailed in Chapter 4 of the Report, the NYSE has been particularly reluctant to adopt relative performance measures so that specialists who were regularly among the lowest ranked specialists would be subject to performance reviews. 1/ While the NYSE continues to believe relative standards raise difficult issues, it has agreed to review the feasibility and desirability of developing relative measures of performance.

2. The SROs should examine individual specialist performance during the market break and, where appropriate, bring disciplinary actions or reallocation proceedings to remedy poor specialist performance during the market break.

To date NYSE investigations into specialist performance during the market break have resulted in the reallocation of five stocks from four specialist units (the stocks are J.P. Morgan & Co., Gould, Inc., Neiman Marcus Group, E.F. Hutton Group, Inc., A.G. Edwards, Inc.), with an additional stock, Carter-Wallace, up for reallocation on March 10. (We note that A.G. Edwards was reallocated because the reallocation of E.F. Hutton Group would have less significance due to its imminent termination). The NYSE has indicated that it is continuing to review specialist activity during the October market break period, and is focusing particularly on those areas of concern outlined in the Division's Report such as proprietary activity during gap openings (opening at a price significantly away from the previous last sale), delayed openings, and trading halts.

The American Stock Exchange ("Amex") has examined trading in every security traded on the exchange during the market break period. The Amex has identified 70 securities involving 16 specialist units with potentially inadequate performance that have been referred to a Subcommittee of the Exchange's Performance Committee for review. Four additional units are also in the process of being referred to the Subcommittee for review. The Amex expects that either disciplinary action or reallocation proceedings will be instituted in a number of the questionable situations identified. Amex has promised to keep the Division staff informed of developments in this area.

The Division Report recommendations requested Amex to focus on gap openings, delayed openings and trading halts when reviewing specialist performance and explore why a large number of Amex stocks remained closed for extended time periods. Amex has indicated it is currently reviewing all trading halts and

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1/ Currently, the NYSE uses absolute standards to evaluate performance. This means that a specialist has to be graded below a certain unacceptable level on the SPEQ or other performance criteria to be subject to performance improvement initiatives.

delayed gap openings that occurred during the market break. The Exchange has identified some instances of questionable delays or halts and these are being pursued by the Exchange's Performance Committee.

Amex has indicated that it is considering some changes to improve the administration of trading halts such as requiring all trading halts and gap openings to be approved by an Exchange official or Floor Governor, rather than just a Floor Official as currently required. Further, the Amex is considering requiring all specialists to prepare a form, which currently is optional, indicating the pre-halt condition of the specialist's book and any orders represented in the trading crowd prior to and subsequent to any halt in trading.

Four regional stock exchanges, the Cincinnati Stock Exchange ("CSE"), Midwest Stock Exchange ("MSE"), Philadelphia Stock Exchange ("Phlx"), and PSE, have examined individual specialist performance during the market break and have not identified any questionable actions that would require disciplinary actions or reallocation proceedings. These exchanges note that they have not received any formal complaints regarding specialist performance during the market break. The Boston Stock Exchange ("BSE") is currently investigating one matter that relates indirectly to the market break. Individually, the MSE supports the development of objective, relative standards to evaluate specialists and will be filing with the Commission, in the near future, a new set of criteria for specialist evaluation based on a relative standard of performance. The PSE is currently examining the market making obligations of regional specialists as opposed to primary market specialists, and has agreed to explore this issue with each of the other regional markets.

B. Small Order Routing and Execution Systems

1. NYSE should increase efforts to improve the processing of orders by continuing to upgrade order-handling equipment through implementing new and more efficient, higher-speed printers, and adding new disk drives, minicomputers, and improved software. The Division also encourages the NYSE to increase the number of stocks on electronic display books and to complete the connection between the electronic display book system and limit order system, so that fewer orders will have to be printed and then handled manually.

The NYSE responded that it has made improvements to virtually every exchange order processing system since the market break. As noted above, the NYSE has created an Operations Advisory Committee with the objective of synchronizing planning and operational efforts to provide the capacity to handle routinely a 600 million share day by the end of 1988. The NYSE has doubled the number of stocks on electronic display books and is taking steps to route both market and limit order traffic to the display books via a new communication switch, thus averting backlogs at the universal floor device controller switch ("UFDC") and reducing the number of orders that must physically be printed out. In addition, the NYSE has substantially increased the number of printers on the floor and implemented enhancements to those printers. In February 1988 the NYSE completely replaced its odd-lot system, and by April 1988, the NYSE plans to upgrade the limit order system, resulting in a 50% increase in capacity.

2. Amex should review conditions that led specialists to shut off AUTO-PER.

Amex is taking several steps to address the conditions that led some specialists to shut-off their AUTO-PER screens. First, Amex is working to relocate terminals that are behind specialists so the terminals will be at their front and thus easier to use. Amex is also redesigning the AUTO-PER screen to eliminate the need, in some situations, to use an additional page to complete execution of an order. Amex believes this redesigned screen will permit specialists to execute orders more quickly and can thereby reduce the possibility of having orders printed and executed out of sequence, a concern that caused some specialists to shut-off their screens. Finally, Amex is conducting a pilot program with respect to the implementation of an electronic book that it believes will provide smoother integration of AUTO-PER and booked limit orders.

3. Implement or accelerate systems improvements to enhance ability to accommodate volume surges.

The BSE currently does not have an automated routing and execution system. BSE, however, is in the process of developing the BEACON system--Boston Exchange Automated Communications and Order-Routing Network. BSE expects that when BEACON is in place it will be able to process at least 10 million shares per day, which is approximately three times its current average daily volume. BSE expects BEACON to be fully operational by year end.

The CSE has been in the process of implementing major hardware and software improvements to its trading system to accommodate volume surges and higher volume levels. CSE states that the implementation of these enhancements is progressing expeditiously at this time and should increase capacity by approximately 50%. CSE believes these enhancements will enable it to process volume such as occurred during the week of October 19 without any problem or delay.

MSE has increased the capacity of its MAX system from 36,000 trades per day to 54,000 trades, a 50% increase, since the market break. According to MSE, this increase means that, assuming a normal mix of orders, its system could process, with no delays or problems, the volume of orders experienced during the market break. Additional changes are being implemented through June 30, 1988 that will increase capacity further to 60,000 trades. MSE also has developed a "performance management measurement methodology" to improve MSE capacity forecasting and obtain increased capacity with their current systems on an as needed basis. Both staff and software tools have been added to implement this program throughout 1988.

Phlx estimates that PACE system capacity has been increased from approximately 12,500 orders per day to 17,000-17,500 orders per day since the market break. 2/ Phlx states that further enhancements that are expected to be in place by June 1988 should increase system capacity to over 20,000 orders per day without queuing. The Phlx also has accelerated its plans to replace its current computer system for PACE by year end. Phlx estimates this change will increase capacity to 40,000 orders per day and will allow Phlx to handle its anticipated share of volume on an 800 million to 1 billion share day. Further, when its new computer system is in place Phlx believes it will be able to increase capacity to accommodate volume surges with less than 24 hour turnaround time.

As noted in the Division's Report, Phlx has also made modifications that permit automatic reporting to continue when the automatic execution feature of the system is disengaged. This will allow Phlx to switch to manual execution of orders, which was done on October 20-22, without encountering the reporting delays that occurred at that time.

Phlx also has increased the capacity of its CENTRAMART System, which processes incoming quotation and transaction information, by approximately 20% since the market break. Further enhancements are expected to be implemented on April 1 that would allow this system to handle Phlx's share of 600 million share days. By year-end, computer enhancements should increase CENTRAMART capacity to the 800 million to 1 billion share level and allow additional capacity to be added quickly when needed.

PSE states that it has doubled SCOREX's capacity since the market break to 50,000 messages per day. 3/ "Messages" would

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2/ The PACE system processed 14,927 trades on October 19.

3/ PSE is planning to conduct a test of the systems capacity on March 5 and 6.

include incoming orders, order status report requests, and order cancellations. On October 19 and 20 SCOREX received 47,000 messages per day. PSE achieved this increased capacity primarily by adding two additional data communication lines between San Francisco and Los Angeles, which expanded capacity of this component of the system by 50%. The PSE believes that with this increased capacity it would now be able to handle the volume levels experienced during the October market break without problems. 4/ PSE notes that further enhancements still underway, such as the elimination of unnecessary trade and quote data received from Securities Industry Automation Corporation ("SIAC") and the possible addition of two communication processors, should provide reserve capacity to accommodate even higher volume levels. Finally, PSE expects that its on-going computer replacement project, to be completed within the next 2 years, will increase capacity to 100,000 messages per day.

4. Develop contingency plans to cope with order routing and reporting difficulties during periods of unusual volume; including back-up systems, personnel training, and improved communication with public customers.

BSE has stated that once it has implemented its BEACON system, it also will create a back-up system. As to training, floor operations personnel currently trained to supplement floor brokerage functions will also be trained in the BEACON system. BSE non-floor personnel also are trained in a variety of clerical floor functions.

CSE has upgraded its staff with more qualified employees to improve overall competence. CSE also notes it is continually reviewing and upgrading the quality of its back-up systems.

In 1988, MSE intends to improve back-up capabilities including a communications link between MSE and large member firms and service vendors. Further back-up capabilities are being planned for future years. The MSE is also developing a contingency capacity fall back plan for 1988 that will identify any non-essential MAX activity that could be eliminated during unusual volume surges to accommodate more volume.

MSE also has developed a program to train upstairs personnel to supplement floor staff in "volume breakout situations." The staff will be trained in Trade Input and MAX customer interface functions. Training classes will begin in March, with refresher courses scheduled on a quarterly basis. MSE procedures provide

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4/ PSE states it ran the internal tape for October 19 against their upgraded system and that there was no problem in processing the volume for that date.

for the additional staff to be on the trading floor within 15 minutes when needed.

Phlx believes that it currently has adequate back-up personnel at all levels including data processing, operations and marketing/customer communications. In addition, Phlx notes that the PACE system will have two important back-up systems when the computer changes noted above are implemented by year end. First, all computer functions will be performed in duplicate and cross-checked so that any system breakdown will be detected immediately. Second, because the new computers are modular, additional temporary capacity can be added within a day.

The PSE is refining its contingency plans to re-route orders manually to floor booths if its other enhancements prove insufficient at a particular time. PSE also has formed a working group to plan the training of staff to meet the requirements of a market disaster, such as providing relief for regular staff. A list of former options staff who have assumed other responsibilities at the exchange, is regularly updated and these employees will be receiving refresher courses. Other staff will be trained in equities floor operations, and receive regular training updates, to supplement the equity floors when needed.

5. Improve exchange communication with retail firms concerning problems, delays, and changes.

BSE intends to notify BEACON users of delays and other system problems through administrative messages, supplemented by direct contact with member firms. In addition, BSE has recently appointed a new officer who, among other things, will be responsible for improving communications with member firms.

The CSE has made certain improvements, including a direct line to retail firms, to expedite communication concerning system problems and delays.

MSE recently has implemented procedures to shorten the amount of time it takes to notify retail firms of problems or changes to MAX by both administrative message and telephone. Under the procedures, MSE will first notify firms of problems, delays or changes to MAX through administrative message and will follow-up with phone calls to the firms.

Phlx has developed procedures to ensure there is adequate notice to PACE users and Phlx marketing personnel of any changes to system execution parameters.

PSE currently is upgrading and formulating its current procedures for contacting retail firms when system operational problems or delays occur. PSE also will be notifying SCOREX users that during periods of extremely heavy volume the automatic execution feature may be disengaged to enable additional "throughput." Both firms and the SEC would be notified prior to any actual disengagement of the automatic execution features.

6. Improve coordination between exchanges concerning problems with, or shut-down of, small order systems.

Both the Amex and NYSE believe more effective intermarket communication is necessary. NYSE's Operations Advisory Committee will be working to ensure better communication concerning system delays among the markets.

CSE states it is committed to timely communication, by both telephone and administrative message, with other markets on problems with CSE systems.

MSE has implemented the procedures necessary to use the ITS broadcast administrative message capability at SIAC to notify other Exchanges of problems or shut-down of small order systems, as agreed upon with the other exchanges.

The Phlx questions whether improved coordination among the markets on small order system problems would be useful. Phlx notes that it is difficult to predict the response of member firms to system problems and that it would not want to be responsible for having another market modify its own systems in anticipation of increased diverted volume that never materializes.

PSE is contacting other exchanges to explore the development of better communications among the markets during a market break. PSE believes better SRO communications and coordination of activities for the benefit of the market as a whole would be particularly beneficial concerning the exchanges' automatic execution systems.

C. ITS

1. Consider adopting default procedures to provide that, when a commitment to trade over ITS is not accepted or rejected within the applicable time frame, an execution report will be automatically generated by the system, based on the commitment price or the then current quotation (whichever is better) for the security in the receiving market.

The exchanges were divided on the issue of the default procedures. While the PSE, MSE and CSE thought that such procedures were attractive in concept, Phlx, NYSE, Amex and BSE found such procedures to be unnecessary.

The PSE, MSE and CSE, however, recognized certain difficulties in the actual development of the procedures. MSE was mainly concerned that if the accuracy of the quotes is not improved default execution could consistently result in inferior executions. MSE recommended that a task force be formed to examine the feasibility of developing a mechanism to deal with such concerns. The PSE also noted the difficulty in providing default executions while the size of the ITS commitment is greater than the size of the quote in the market to which the commitment is sent and stated that the default procedure should incorporate some measure of size of commitment. Furthermore, PSE was concerned that default procedures would not in fact operate efficiently in periods of high volume and that specialists' capital positions would be "swamped" without the specialists' knowledge. PSE also argued that because the "then current quotations" could possibly not be the "best," the default could create a trade-through of another market. Finally, PSE believes that significant systems efforts will be required to implement the on-line linkage between the current ITS system and the quotation system that would be necessary for the default procedures.

The CSE noted that the proposal "does not go far enough" in today's trading environment and suggested that the proposal be extended so that locked bids and offers between different market centers instantaneously generate an ITS execution.

NYSE, Phlx, BSE and Amex also rejected the suggestion for default procedures on the grounds that system enhancements would be less costly and would correct the problem of expirations. The exchanges reasoned that if the systems no longer experienced delays, expiration of commitments would no longer be a serious problem. As they stated in their responses, the exchanges have undertaken various systems developments, which they believe will address the delays experienced in October.

2. With respect to the ITS Plan, develop pre-opening procedures that would apply after trading imbalance halts, similar to those that apply after "regulatory" halts.

The exchanges unanimously agreed that developing pre-opening procedures that would apply after order imbalance halts was of great importance to the efficient operation of ITS. Several exchanges noted that they would initiate the proposal at the next meeting of ITS representatives.

3. Define procedures for communication among the exchanges, and identify an ITS contact person in each market who will be available during market emergencies.

At the last ITS Operating Committee meeting in early February, the communication issue was discussed and all exchanges agreed to designate the operating committee member as the contact person for each exchange. The contact person in turn was to designate a back-up person and communicate the information to the other participants. Furthermore, each participant is to provide current names and phone numbers for key members familiar with ITS operation and policy. Some exchanges already circulated their list to the other participants.

The CSE further recommended that the ITS Operating Committee identify certain situations that adversely impact the effective operation of ITS and develop procedures for decision-making in such situations.

4. NYSE should consider separating ITS terminals from the printing functions of other systems, such as DOT, in order to facilitate the printing of ITS commitments before the two-minute expiration period.

The NYSE does not believe that separating the ITS terminals from the printing functions of its other systems, will reduce the number of ITS expirations. The NYSE considers, however, that improving its other systems will improve the overall performance of ITS. Systems enhancements on the NYSE that would improve ITS performance include steps to route DOT and limit order traffic to the Electronic Books via a new communication switch, which would free up capacity in the UFDC. (As explained in the Report, ITS orders are routed through a UFDC switch where they are printed out by a card printer and routed to the specialist.) The exchange has also added (and is still adding) display books to further eliminate printer functions for Superdot, thereby leaving the post printers for ITS functions.

5. NYSE should, with respect to ITS complaints, investigate and try to resolve all complaints.

The NYSE believes that anticipated changes in system configuration should address many of the causes of customer complaints experienced during the October market break. In addition, the NYSE plans to further train its staff to respond to specific problems associated with system overload.

D. Market Information Systems

1. NYSE should review whether it has adequate personnel and facilities to maintain accurate trade and quote reporting capabilities during periods of sustained high volume.

The NYSE believes that it has adequate personnel and facilities to ensure accurate trade and quote reporting and has assured us that it is committed to maintaining this capability no matter what level of activity occurs.

E. Order Handling

1. The NYSE should include a review of operational capacity of firm order handling systems in broker-dealer examinations.

The NYSE intends to establish operational standards to apply to all market participants.

F. Compared Trades

1. The Division believes that the NYSE, Amex and National Association of Securities Dealers, Inc. ("NASD") should consider accelerating their efforts to generate same-day compared trades, thereby enabling members to know their positions and market exposure before trading commences the next day.

The NASD agrees that this is a good suggestion and plans an Automatic Confirmation Transaction System that, together with the Small Order Execution System ("SOES"), Order Confirmation Transaction ("OCT") service, and the Trade Acceptance and Reconciliation Service ("TARS"), would provide an almost total same-day comparison capability for the NASDAQ market.

NYSE states that its Operations Advisory Committee is working on (1) a shortened comparison cycle and (2) an automated Questioned Trade process and, further, that the exchange is developing an electronic Floor Derived Comparison ("FDC") system to accomplish these objectives. NYSE plans to implement FDC in three phases during 1988. Amex states that it has begun development of electronic systems that would allow same day floor-derived point of sale comparison for both equities and options and that it plans to begin implementation during the last quarter of 1988. NYSE and Amex report that they have been working closely with National Securities Clearing Corporation ("NSCC"), SIAC, and others on these projects.

G. Specialist Capital

1. Review minimum capital requirements for specialists.

The NYSE, Amex, Phlx, MSE and PSE, currently are reviewing the adequacy of their respective specialists' capital. The BSE, effective December 31, 1987, increased specialists' equity capital requirements from $80,000 to $100,000 and effective June 30, 1988, will increase the requirements to $125,000.

2. Review present systems of specialist capital surveillance to determine if increased monitoring is necessary.

The NYSE has increased its monitoring of both specialists' capital and positions by requiring that such information be filed with the NYSE by 9:00 a.m. daily.

Based on a review of its system of specialist capital surveillance, the Amex concluded that several changes should be made in both its routine surveillance procedures and its monitoring during periods of market turbulence.

The Amex is intensifying surveillance by (i) requiring firms having specialist accounts to provide on a daily basis standardized account information for specialists (including activity on other exchanges for dual members); (ii) requiring daily information from self-clearing specialists; and (iii) closely monitoring the effects of increased capital requirements following their implementation. For times when even closer monitoring is necessary, the Amex is considering requiring specialists identified as most susceptible to damage to provide daily positions and profit and loss estimates shortly after the close of business. The Amex is prepared to have examiners review specialists' books and records, on a daily basis if needed, to obtain information not otherwise available.

The MSE is studying requiring specialists to file financial reports on a more timely basis (from quarterly to monthly for self-clearing specialists and from annually to quarterly for introducing specialists). The MSE is developing a mechanism to review specialists' inventory positions on an intra-day basis, rather than on an overnight basis only.

While PSE believes that its existing procedures worked effectively during the market break, the PSE is reviewing specialist capital surveillance systems to determine if they capture in a timely manner all the desired information for adequate monitoring. Based on the current status of the review, it appears that some modifications to the current daily reports and monitoring process will be implemented.

3. Explore the possibility of requiring all "self-clearing" specialists to maintain a line of credit with a bank or lending institution or imposing higher capital requirements on specialists who do not maintain such a line.

The NYSE is exploring the need for specialists to maintain additional lines of credit and other lending arrangements.

The MSE and Midwest Clearing Corporation (MCC) are reviewing the possibility of imposing higher capital requirements on self-clearing specialist firms.

PSE will consider whether to require higher capital for specialists that do not have bank credit lines.

CSE states that requiring lines of credit or higher capital requirements for dealers without such accommodations is an issue that needs further review. The CSE will soon file a proposed rule change that will establish an optional minimum net liquidating equity requirement for those dealers who do no customer business and maintain letters of guarantee with CSE clearing members.

4. The NYSE should review with its members the desirability of establishing diverse lending relationships with a number of banks, as well as the feasibility of obtaining more committed lines of credit than currently exist.

Over the next several weeks, the NYSE staff will meet with a number of its largest member firms to discuss their credit and banking arrangements, including the number and types of banking relationships and efforts to obtain other financing.

III. The Options Markets

1. Examine whether strike prices should be set at the minimum increments during a period of increasing volatility.

The CBOE is considering policies to limit the addition of new strike prices for both stock and index options during periods of extreme volatility. In particular, the CBOE would limit new series to those necessary to bracket the prevailing index value or underlying stock price and to a limited number of new series farther in- or out-of-the-money. The CBOE believes that further study is required to define the scale of market volatility that would trigger implementation of this policy and to determine appropriate emergency strike price increments.

The Amex noted that it has decided to retain its policy of keeping new series at five point intervals for stock and index options. The Amex emphasized that it currently is examining the possibility of introducing new strike prices only at levels immediately surrounding the market price of the index or stock during a dramatic market break. Then, as the market in the underlying instrument turns around, new strikes could be added to fill in gaps between those added earlier and current levels. The Amex will discuss this matter further with appropriate exchange committees in the near future.

The PSE noted that this issue should be studied further and emphasized that coordination among all options exchanges on this matter would be necessary. PSE added that existing minimum increments had become institutionalized and that the theoretical advantages of fewer options series could be outweighed by the operational disadvantages associated with extensive educational and notification processes new procedures would involve. Moreover, exchanges would have to agree on standardized parameters that would trigger a modification to existing procedures for adding series at different increments.

While it agrees with the objectives behind limiting introduction of new option strike prices during periods of increasing volatility, the Phlx questions the efficacy of such a measure. In particular, the Phlx argues that because most stock prices do not move drastically even during relatively volatile market periods, skipping strike prices to relieve processing pressures would mean sacrificing the ability to list at-the-money strikes. In addition, the Phlx is concerned that such an approach could confuse investors and firms accustomed to the availability of a complete array of strike prices. The Phlx also notes that after the October market break it attempted to cull out certain deep in- or out-of-the-money options series with no open interest in order to relieve operational problems but that such efforts yielded minimal results.

2. Review the performance of Small Order Execution systems (RAES and AutoEx) and exchange rules that apply to market maker participation in these systems, focusing on ways to ensure high levels of participation in volatile conditions.

The CBOE is evaluating methods to ensure high levels of market maker participation in RAES during volatile periods. Efforts are focused on reducing disincentives to continued participation in RAES and establishing sanctions for leaving the system. To that end, the CBOE has submitted a proposed rule change that will give the CBOE authority to require market maker participation in RAES in designated equity options classes through the next following expiration.

The Amex indicated that it seeks to broaden registered options trader ("ROT") participation in the following ways: (1) allow ROTs to sign on at any time during the day; (2) choose whether to participate in calls, puts or both; and (3) participate on the system for more than one options class.

3. Discuss with vendors steps that should be taken to coordinate the introduction of new series that may exceed vendor capacity and which series, if any, should be delisted when vendor data base capacity has been outstripped.

The CBOE has communicated with vendors that experienced capacity problems during the market break and has advised them to delete less active option series as necessary. In addition, the CBOE notes that the options exchanges, through the Options Price Reporting Authority ("OPRA"), recently have implemented automated and more efficient methods for introducing new series. The CBOE believes that vendor capacity strains could be alleviated in part by limiting the introduction of new series during extreme market volatility, but that it also may be necessary to allocate OPRA and vendor capacity among participant exchanges. The CBOE recommends further study.

The Amex stated that representatives of the OPRA Technical Committee began design system modifications that would permit the announcement of new options series through computer formatted messages, which then would eliminate a time-consuming and error-prone process of manually transcribing administrative messages. The Amex also emphasized, however, that series omission policies when vendors have capacity questions is a practice that should never become systematic within the vendor community and that all series should be retained at all times. Amex believes that OPRA must regularly update vendors on volume and capacity projections so that vendors have facilities in place to handle growth and spike volume peaks. Finally, the Amex noted that it has adopted a policy permitting the exchange to delist series when there is no open interest.

PSE also noted that option vendors' series file capacity issues can be dealt with best by OPRA, and the exchange has asked OPRA to focus on vendor capacity questions. Finally, the PSE stated its belief that delisting series with no open interest will not solve capacity problems in periods of high volatility and noted that, although many series have little open interest, exchange rules currently do not permit delisting of these series no matter how inactively traded they are.

The Phlx believes vendors' first priority should be to increase capacity. In the meantime, the Phlx and other OPRA participants have worked and will continue to work with vendors to address current capacity problems, plan for future capacity expansion, increase message capacity, and devise contingency plans for potential future problems. Finally, the Phlx notes that it believes vendors should respond to extreme volatility by delisting the furthest out series rather than those series with no open interest.

4. Examine rules regarding opening rotation procedures and methods for speeding up rotations and handling rotations during volatile periods.

The CBOE has been reviewing its opening rotation procedures since last October. Since December, the OEX opening has been informally modified by dividing OEX series into three groups that are opened separately and simultaneously. According to the CBOE, these procedures, combined with recent low volume and volatility levels, have resulted in opening rotations of no longer than 10 to 15 minutes. In February, the CBOE Board of Directors approved in principle a plan to divide OEX into seven zones, six of which would be opened simultaneously with one or more lead market makers charged with establishing opening prices and facilitating imbalances. The CBOE is working with Commission staff to develop an exchange rule filing that would implement this measure.

The Amex stated that it currently is examining the feasibility of introducing an opening rotation in its Major Market index option ("XMI") that would allow for the quick opening and free trading of more actively traded series by first opening the series that qualify for AutoEx. Upon completion of rotation in these five or six calls and puts that generally are nearest the current index value, AutoEx will be turned on to execute market and marketable limit orders up to ten contracts instantaneously. Opening rotation in other series then will proceed in a normal manner.

The PSE also noted that the minimization of rotation time is important and has been the subject of considerable concern, study and action. The PSE then described its existing rules, procedures, staffing, and training for staff, but did not discuss any modifications to its existing procedures.

The Phlx notes that during the October market break it did not encounter serious problems conducting opening rotations in any options other than certain index options. The Phlx used a reverse rotation (where the farthest out option series are opened first) for these index options and feels that the modified opening rotations were manageable. The Phlx argues that its current rules, which grant specialists substantial flexibility to design rotations to respond to unusual market conditions, will allow the exchange to adequately address any future opening rotation problems.

5. Review ways to ensure adequate levels of market maker participation in volatile markets.

According to the CBOE, in light of the October market break its Market Performance Committee is examining the adequacy of CBOE's rules relating to market maker obligations. In particular, the CBOE is examining its policies respecting modification of these rules during unusual market conditions. The CBOE is focusing on determining which rules should be waived during unusual market conditions and whether back-up rules should be imposed to ensure that orders are handled fairly and efficiently during market stress periods.

The Amex specifically noted that efforts must be undertaken to ensure adequate levels of specialist and ROT participation in the future. While noting the difficulties in using traditional performance standards for derivative products, the Amex indicated that it was examining more formalized standards, focusing in particular on quote spread differentials. In addition, the Amex noted that it is considering implementing a modified firm quote policy for options. Both of these proposals, however, would have to be reviewed and approved by appropriate committees and the Amex Board.

The PSE also noted that market maker participation in options markets is complicated by the nature of derivative instruments generally and the differences between equity and index options, and that it would be difficult to establish equitable and uniform rules to ensure adequate levels of participation in volatile markets. The PSE emphasized that this was an industry-wide issue and that it would be willing to participate in an industry-wide review process.

The Phlx supports measures to ensure adequate levels of market maker participation in volatile markets and recommends that the Commission consider hosting a meeting of representatives of all the options exchanges and primary stock markets to consider these issues on a more comprehensive basis.

6. Evaluate the adequacy of current margin levels for index options and equity options.

Since the October market break, the CBOE has been reviewing the adequacy of index and equity option margin levels and suitability standards in consultation with major retail firms, other options markets, and the Commission. At its February meeting, the CBOE Board of Directors decided to retain the current "premium plus" margin methodology and to increase the "add-on" component of such margin calculations from 10 to 15 percent for index options and from 15 to 20 percent for equity options. The minimum margin for out-of-the-money options (both index and equity) would be increased to 10 percent. The CBOE proposes to conduct more frequent monitoring of the adequacy of these margin levels. The CBOE also is considering imposing a minimum equity requirement for accounts approved to write naked short options, straddles, and combinations. These minimums could be established as part of additional suitability guidelines, which currently are under review by the CBOE and other options exchanges.

These proposals were discussed at a meeting of representatives from the Commission and most options exchanges on February 29. At that meeting the Commission staff urged prompt consideration by the options exchanges of these proposals.

The Amex indicated that options margin should be based on current market volatility and that the exchanges should have the authority to adjust stock and index margin levels above an SEC approved floor without having to submit a proposed rule change. A committee representing all option exchanges should be established to monitor current price volatility and raise or lower stock and index option margin when appropriate. Pending progress in this matter, the Amex noted that the following initiatives should be taken: (1) increase minimum account equity to $25,000 from $2,000; (2) modify short straddle and combination margin to require the margin to be the amount of margin required on the side with the largest requirement plus the amount of the premium on the other side; and (3) increase the minimum amount of margin to be added to the premium for out-of-the-money options.

The PSE indicated that present margin levels, for index and equity options, may not be adequate as permanent standards and expressed its willingness to join other exchanges and the SEC in further reviewing margin levels.

The Phlx notes that it currently is working with the other options exchanges to evaluate the adequacy of stock and index option margin levels. The Phlx concludes from a preliminary review of trading data that current margin levels are adequate to ensure credit worthiness and performance of obligations even during periods of increased market volatility on the scale of last October. According to the Phlx, serious consideration should be given, however, to whether current margin levels are adequate to avoid excess speculation or curb excess market volatility. The Phlx's preliminary view is that any change in margin requirements designed to address speculation and volatility concerns should result in adoption of equivalent margin levels for both index and individual equity options.

7. Examine the performance of index option market makers during the market break, especially on October 20.

A special panel of CBOE members and persons associated with CBOE member firms has reviewed October 20, 1987 OEX pricing. The panel report characterized options pricing on the morning of the 20th as "extreme but understandable in light of the chaos and extreme volatility then prevailing in all markets." The CBOE notes that as a "goodwill gesture" it will make refunds to member firms based on the difference between the premiums actually paid by public customers for certain November OEX options during the market break and the prices they would have paid if premiums had been based on an implied volatility of 300. The total amount to be paid (approximately $1.2 million) will be recovered by assessing a voluntary fee of $.01 per contract on market makers' future OEX transactions. As a result of a number of customer and member firm complaints, the CBOE regulatory staff also is reviewing market maker performance during the market break, with special emphasis on October 20. The CBOE expects to complete this review in the near future.

The Amex noted that upon review of XMI trading on October 20, 1987, it was unable to conclude that overall specialist and ROT performance constituted a course of dealings that the Amex believed was fair and orderly. More specifically, the Amex found that various XMI put transactions in which the specialist unit participated were not priced fairly. Notwithstanding this finding, the Exchange only admonished the specialist for substandard performance, noting that any recurrence would result in a reallocation. The Amex also specifically instructed the specialist to develop a plan that would ensure adequate performance in the future and prevent recurrence. Similar to the CBOE, the XMI specialist and member firms representing customer executions will make certain refund payments for XMI options priced excessively during the market break. The Amex determined that XMI options with a volatility factor exceeding 325 were priced excessively.

IV. OTC Market

The NASD has responded to problems encountered during the market break by proposing a number of initiatives. These initiatives include raising the penalty for unexcused withdrawals by market makers from NASDAQ; requiring all NASDAQ market makers to participate in SOES; providing that SOES executions will continue in an OTC/National Market System security when quotes are locked or crossed; eliminating preferencing of market makers when a locked or crossed market exists; and establishing the Order Confirmation Transaction ("OCT") service that will permit firms to access market makers over the computer without voice contact.

1. The NASD should inquire into the performance of its market makers during October to assess those firms' compliance with NASD rules (for example, a number of market makers withdrew from SOES and continued routing orders through SOES, potentially in violation of SOES Rules).

The NASD'S Market Surveillance Department has examined several areas of performance and is still in the process of gathering information on some. Specifically, the NASD expects to conclude a review of SOES market makers in April.

2. The NASD should review whether the OCT service should provide for automatic executions against market makers who fail to respond to messages from other market makers within a set amount of time.

The NASD believes that more experience with the system is required before automatic execution can be considered. An interim step would be to provide for negotiations as to price and size.

3. The NASD should continue to use its hotline to apprise market makers whose quotes are locked and crossed that they must take remedial action.

The NASD states that the hotline, which at present can be used to contact 50 of the largest market makers, remains in place and will be part of its routine operational procedures.

4. The NASD should inquire into the large number of transactions reported out-of-sequence to determine whether particular firms are unable to comply with the transaction reporting rules.

The NASD expects to complete by April an extensive review of the trade reporting practices of some major firms, especially those reporting many apparently out-of-sequence transactions or transactions executed after hours.

5. The NASD should review with broker-dealers the desirability of establishing diverse lending relationships with a number of banks, as well as the feasibility of obtaining more committed lines of credit than currently exist.

The NASD agrees with the suggestions and will discuss them with its members.

V. Clearing Agencies

1. Monitoring Coordination Group ("MCG") members should meet in the near future to discuss:

   (a) how well MCG procedures worked during the week of October 19 and what improvements should be made,

   (b) the participation of commodity futures clearing corporations and other appropriate futures entities with the MCG to ensure complete coordination and dissemination of information on common matters, and

   (c) procedures to update regularly contact persons and telephone numbers for each MCG member.

The NSCC, Depository Trust Company ("DTC") and Options Clearing Corporation ("OCC") support the reconvening of MCG for these purposes. NSCC further has suggested, among other things, that: (1) each participant provide to the Commission in advance of the first meeting a list of areas where the events of October 1987 might have shown improvement as a result of better inter-clearing agency and Designated Examining Authority ("DEA") cooperation; (2) each participant provide the Commission with an emergency call list that it will update; and (3) MCG be chartered, provided an administration, required to meet at least quarterly, and provide annual reports to the Commission.

2. With regard to NSCC's earlier trade guarantee, the Division will continue discussion with NSCC regarding steps to reduce remaining exposures resulting from an earlier guarantee. In addition, NSCC's current risk monitoring system should be enhanced. While NSCC's current system does not provide real-time estimates of liquidation costs, the Division understands that NSCC expects to upgrade its system within the next few months to provide estimated liquidation costs based on current and projected future prices. Please provide specific information on the planned enhancement and when it will be implemented.

NSCC has analyzed daily marks-to-the-market of guaranteed trades prior to settlement in connection with its earlier trade guarantee. NSCC believes that daily marks would pose financial difficulties for NSCC members, because NSCC members would be required to fund those marks themselves for customers that customarily are not required to pay for securities until delivery under "delivery versus payment" arrangements. NSCC is enhancing its ability to monitor and collect marks by establishing daily computerized reporting of parameter breaks that will be available within two to three months. If a parameter is crossed NSCC will collect an immediate mark from the member through an increased clearing fund deposit.

3. Clearing agencies should consider cross-liens with all other registered clearing agencies on joint member assets, thereby allowing a clearing agency to pay over to another clearing agency the balance of a joint defaulting member's clearing fund deposit, if any, after satisfaction of losses at the first clearing agency.

NSCC and DTC indicate that the idea of cross-liens on joint assets of clearing agencies is worth exploring further. NSCC suggested bringing the matter before the MCG, and DTC advised consulting bankruptcy experts on possible legal ramifications. OCC intends to study the concept of cross-liens as part of its Special Study of OCC's systems, discussed below.

4. Although the Division believes that OCC's non-equity option ("NEO") margin system is a reliable method or risk measurement, further analysis of the margin intervals would be appropriate. In particular, the 95% coverage level may not be appropriate if the range of historical price movements is sufficiently large to pose substantial exposure to OCC.

As a general matter, OCC has undertaken a special study of its systems, which will include eight broad areas for review, including those identified in the Division's Report. The objective of OCC's study is to identify any structural weaknesses or areas that can be improved. OCC's margin committee has commissioned a sub-committee, including margin committee members and industry representatives, which will complete the study over the next three months.

5. In light of OCC's financial loss from the insolvency of its former member H. B. Shaine, Inc., OCC should analyze the feasibility of special margin requirements for increased concentrations in customer, or proprietary, accounts. Another alternative might be concentration limits keyed to positions such as uncovered short options that are excessive in light of the OCC member's financial strength.

As part of the special study noted above, OCC will address, among other things, the failure of H.B. Shaine & Co. While OCC believes its margin and concentration monitoring systems worked well during the October market break, it also believes further examination is warranted, particularly where concentrations exist in the form of uncovered short positions and directly affect the financial strength of a member.

6. OCC should consider strengthening member net capital standards or instituting additional financial requirements (such as those required for participants in The Depository Trust Company's Same Day Funds Settlement Service) to serve as a further layer of protection against member defaults as a result of volatile markets. The possible negative affects of such requirements also should be considered.

OCC responds that is has been considering increasing its net capital requirements and will analyze the costs and benefits of such increases as part of its study. Although OCC believes that strengthening its capital requirements could provide significant risk reduction benefits, OCC notes that currently its monitoring system recognizes an OCC member's net capital as a limiting factor in the amount of risk a member can pose to OCC.

7. A number of improvements should be considered regarding OCC's variation margin process. First, OCC should deliver debit instructions for variation margin calls to clearing banks at the earliest possible time. Second, OCC should consider whether automated means, as opposed to messengers, could be used to transmit call instructions to clearing banks. Third, OCC should consider whether, in highly volatile markets that require a margin call early in the day, a special call should be made before markets close to protect against late-in-the-day volatility and to reflect OCC's potential inability to calculate and collect variation margin after the market closes.

OCC states that since the market break it has improved the process by which intra-day variation margin calls are issued. System enhancements have shortened the time needed to issue a call from an original 30-45 minutes to a maximum of 15 minutes. OCC also has shortened the time for delivery of debit instructions to clearing banks. OCC also is investigating the possibility of automating the transmittal of call instructions to clearing banks, which if effected, would further reduce the time needed to issue calls.

8. OCC should examine the general adequacy of its ability to monitor members and should act affirmatively to improve that ability in several areas. Improvements to OCC's Concentration Monitoring System may be possible to detect naked short option concentrations in relation to capital, and position concentrations in relation to options open interest. Additionally, OCC should examine whether improvements are necessary in its ability to identify concentrated individual broker-dealer or customer activity that is cleared through omnibus accounts. Finally, OCC and commodities clearing organizations should improve their information-sharing channels.

OCC believes that its monitoring system worked extremely well during the market break. OCC, however, intends to review its monitoring system as part of its study. OCC also believes that improvements should be made in the sharing of information among OCC and commodities clearing organizations. Currently, OCC is negotiating an agreement whereby OCC would join commodities clearing organizations in a centralized system that would collect and disseminate pay and collect information concerning firms that belong to multiple clearing organizations.

9. OCC and its clearing banks should discuss whether improvements can be made in the options money settlement process. Specifically, OCC should consider exploring banking relationships that would enable OCC to pay collecting Clearing Members on time regardless of delays by paying Clearing Members. Additionally, OCC and the clearing banks should clarify their agreements regarding when and how payments or partial payments are to be made and confirmed.

OCC agrees that improvements should be made in the options money settlement process and recently has discussed this subject with several OCC clearing banks. OCC, among other things, has: (1) begun investigating whether banks can be given earlier notice of settlement instructions, (2) completed startup of providing facsimile notification of settlement instructions with one clearing bank, (3) undertaken an examination of banking and legal issues concerning OCC's ability to make timely payment to members in the event of default or delay by other members, including examination of OCC's use of its clearing funds and bank lines of credit.

10. OCC should discuss with banks and Clearing Members the feasibility of using OCC's pledge program to enable Clearing Members with unpaired long options to pledge those options to banks for financing. (At least one bank currently accepts long option positions as collateral for loans.) Moreover, OCC should explore the possibility of using OCC's pledge program in conjunction with DTC's pledge system to provide lenders with collateral consisting of long securities positions hedged with long put option positions.

OCC supports expanded use of its pledge program and believes greater use of that program could improve liquidity. OCC notes, however, that it is in the process of requesting the Federal Reserve Board to consider expansion of current regulations concerning loan values of options positions. OCC also states that it would be willing to explore with DTC whether combined reports covering options and securities positions could be provided to banking institutions.

VI. Other Recommendations

Finally, apart from these discrete steps to address problems regarding operational capacity and contingency planning as identified in the Commission's testimony and the Division's Report, the Division is continuing to evaluate and discuss with market participants those regulatory and market structure concerns raised in the Commission's testimony. Because these issues are so closely connected with the Commission's development of proposed legislative initiatives, we believe it is more appropriate to address these matters in conjunction with the Commission's review of possible legislative steps.

PATRICK J. LEAHY, VERMONT, CHAIRMAN

JOHN MELCHER, MONTANA
DAVID H. PRYOR, ARKANSAS
DAVID L. BOREN, OKLAHOMA
HOWELL HEFLIN, ALABAMA
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United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

March 22, 1988

The Honorable David S. Ruder
Chairman
U.S. Securities and Exchange Commission
450 Fifth Street, N.W.
Washington, D.C. 20549

Dear Chairman Ruder:

Thank you for testifying before the Committee on March 17, 1988 concerning the stock market crash during the week of October 19, 1987. Your testimony as well as that of Senator Brady and Chairman Gramm helped in establishing a record which will aid the Committee in it's role as overseer of the U.S. futures markets.

In order to complete the hearing record, the Committee would appreciate your answers to the enclosed questions as soon as possible. Please return your responses to Christine Sarcone, Chief Clerk.

Again, I thank you for appearing before the Committee. If you have any questions, please contact John Podesta at 224-2035.

Sincerely,

PATRICK LEAHY
Chairman

PJL/jp

Enclosure

QUESTIONS FOR THE RECORD
FROM CHAIRMAN PATRICK LEAHY

FOR CHAIRMAN DAVID S. RUDER
U.S. SECURITIES AND EXCHANGE COMMISSION

1. Have you determined whether any problems associated with specific specialists' performance was a result of their net capital position during the market break?

2. I understand that you delegate primary responsibility for monitoring specialist capital to the NYSE. How frequently do you receive this information for your review which the specialists provide to the NYSE? How frequently or on what basis do the specialists provide this information to the NYSE?

3. Are there any stock exchange or option exchange rules that address intermarket front running?

4. Are there any statutes or regulations that address intermarket front running?

5. How many complaints has your agency received associated with the decline of last year involving the markets and exchanges falling under your jurisdiction?

6. How many of these complaints involved the small investor or members of the public?

7. Do you have a breakdown on the percentage of complaints that involved securities transactions as well as options on stocks and options on stock indexes?

8. Are your giving any consideration to possible changes that might increase "Customer Protection" for small investors? Are you considering any changes regarding suitability requirements?

QUESTIONS FROM SENATOR DASCHLE

QUESTIONS FOR CHAIRMAN RUDER

We are all aware that the Brady Task Force has made numerous recommendations for market mechanism improvements. With respect to circuit breaker mechanisms, the futures markets have instituted price limits as strict as an equivalent 100 point move in the Dow Jones average which would absolutely prohibit a single day move in excess of that level. Regarding trade information systems, the futures industry audit trail, which the Brady report found meets its requirements of prompt, accurate data, has been offered by the Chicago Board of Trade to the New York and American Stock Exchanges. The futures industry has also made provisions to consolidate and exchange the vital clearing information noted by the Brady Report.

Additionally, futures exchanges have increased initial margins to approximately the 15% level which, when compared to the 20-25% level for securities professionals and considering the totally different purpose and function of pay-as-you-go futures performance bond margins and security credit margins, makes stock index futures and securities margins comparable as the Brady Report recommends. Finally, the CFTC has proposed to meet with the SEC, exchange vital intermarket data and coordinate market surveillance activities to meet the needs of command regulatory oversight referred to by the Brady Report. What precisely has the securities industry done since October 19, 1987 to prevent a reoccurrence of a 508 point market decline?

Press reports say the NYSE Chairman John Phelan personally predicted for many months the NYSE "meltdown" which occurred in October 1987. Whatever the cause of that "meltdown", I assume that the NYSE wold have prepared for that event. Yet, a recent report by the GAO concludes that 9 of 12 computer systems at the NYSE failed on October 19th and 20th and the the "NYSE was not prepared operationally for the volumes it experience." It suggests the SEC should reassess it oversight role for automated systems. Why has the NYSE operationally unprepared to handle this volume: What steps has the SEC taken since to reassess it oversight role for automated systems?

What are the responsibilities of specialist firms? Do you believe that specialist firms have sufficient liquidity to perform the responsibilities to make markets in the stocks assigned to the firms? Is there sufficient liquidity for the market place to meet the obligations assigned to specialist firms?

What are the impediments to accepting the Brady Commission report recommendation to establish a unified credit and clearing system?

Last week Stanley Shopkorn of Salomon Brothers proposed a shut down of the list features of the DOT system on the New York Stock Exchange until the system can be expanded and other structural changes can be made. Do you believe this recommendation if implemented would reduce the volatility in the market place and help restore order? If the answer is yes: why is this recommendation not being implemented immediately?

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

OFFICE OF
THE CHAIRMAN

June 8, 1988

The Honorable Patrick Leahy
Chairman, Committee on Agriculture,
  Nutrition, and Forestry
United States Senate
Washington, D.C. 20510-6000

Re: March 17, 1988 Hearing on the October Market Break

Dear Chairman Leahy:

Thank you for your letter, dated March 22, 1988, raising certain additional questions following my testimony before your Committee on March 17, 1988. I am happy to be able to provide additional clarification for the record regarding the issues you and Senator Daschle have raised. Should you have any questions or concerns regarding the attached responses, please contact me, or Richard G. Ketchum, Director, Division of Market Regulation, at (202) 272-3000.

Sincerely yours,

David S. Ruder

David S. Ruder
Chairman

Enclosure

cc: The Honorable Tom Daschle
Christine Sarcone

Questions from Chairman Leahy

Q.1. Have you determined whether any problems associated with specific specialists' performance was a result of their net capital position during the market break?

To date, the Commission has no evidence that any problems associated with specific specialists' performance were a result of their capital position during the market break.

Q.2. I understand that you delegate primary responsibility for monitoring specialist capital to the NYSE. How frequently do you receive this information for your review which the specialists provide to the NYSE? How frequently or on what basis do the specialists provide this information to the NYSE?

Exchange Act Rule 17a-5 (17 C.F.R. Sec. 240.17a-5) requires each broker or dealer who clears transactions or carries customer accounts to file Part I of Form X-17A-5 (Form X-17A-5 is the Commission's Financial and Operational Combined Uniform Single Report, or "FOCUS" Report) monthly and Part II quarterly. Those required to file include specialist units (15 in number) who are subject to the Commission's net capital rule and clear their own securities transactions. Rule 17a-5 requires each broker or dealer who does not clear transactions or carry customer accounts to file Part IIA quarterly. This filing requirement is applicable to specialists who are subject to the net capital rule but introduce their securities transactions (currently there are nine). FOCUS Reports are filed with both the Commission and the NYSE as the specialists' designated examining authority.

Rule 17a-5 provides that the above filing requirements shall not apply to a member of a national security exchange if the information required by Form X-17A-5 is maintained by the exchange and is forwarded to the Commission pursuant to a Commission approved plan. Pursuant to its plan, the NYSE receives and transmits to the Commission twice yearly the FOCUS Reports of its specialists who do not do a public business (of which there are 29).

Each specialist also is required to submit to a financial examination of its books and records conducted by NYSE examiners. This examination is conducted annually for all specialists unless the specialist conducts business other than its floor business as a specialist. Then an examination is conducted twice each year. In the event a specialist is in violation of or near the minimum capital level the exchange requires, that unit is placed on a special surveillance list. Specialists who are subject to the Commission's net capital rule (24 in number) and who have been placed on the special surveillance list are included in a summary containing the names and specific reason(s) for special surveillance. This summary is forwarded to the Commission monthly.

Since the release of the Division of Market Regulation's study on the October market break, 1/ the NYSE has implemented the use of two new capital reporting forms (one for self-clearing specialists and one for introducing specialists). The forms require information, such as a NYSE Rule 104.20 capital requirements computation, market value of securities positions, and other financial information. They must be submitted daily to the NYSE on the day following the trade date. The Commission is currently studying, among other things, the information contained in the forms and the NYSE's review procedure to determine how often either the reports themselves or a summary thereof should be forwarded to the Commission. Also, since the release of the Market Break Report, the NYSE has filed with the Commission a proposal to modify its Rule 104.20, "Capital Requirements of Specialists." The proposal would increase the number of trading units (one unit equals 100 shares) a specialist must be able to assume from 50 to 150 for each common stock in which the specialist makes a market. Furthermore, the proposal would increase the specialist's minimum capital requirement from the greater of $100,000 or 25% of the position requirement to the greater of $1,000,000 or 25% of the position requirement.

Q.3. Are there any stock exchange or option exchange rules that address intermarket frontrunning?

Each securities exchange has a policy (which has the effect of a rule for enforcement purposes) that prohibits frontrunning as conduct inconsistent with its just and equitable principles of trade rules. See, e.g., New York Stock Exchange ("NYSE") Rule 476. All of the securities options exchanges have issued circulars or statements to their members advising them of the exchanges' policies against frontrunning. See, e.g., Chicago Board Options Exchange ("CBOE") Circular No. 23, Revised July 1987; NYSE Information Memorandum No. 85-36, November 6, 1985. Circulars from the CBOE, NYSE, American, Pacific, and Philadelphia Stock Exchanges and the National Association of Securities Dealers were filed with the Commission as rule changes. In addition, the NYSE intends to file a proposal concerning prohibitions on frontrunning using index futures positions. The proposal would clarify that just and equitable principles of trade would be violated if exchange members take futures positions with the knowledge of an imminent execution of a portfolio or block in underlying component stocks that could affect the price of the index.

1/ Division of Market Regulation ("Division"), The October 1987 Market Break (February 1988) ("Market Break Report").

Q.4. Are there any statutes or regulations that address intermarket frontrunning?

Under certain circumstances, frontrunning could violate the prohibitions against manipulation, fraud, and deceit in Section 10(b) of the Exchange Act and Rule 10b-5 thereunder, and could be prosecuted under the criminal provisions of that statute. For example, if a firm purchased IBM put options at a time when it was aware that a customer intended to sell a large block of IBM stock at a price below the market, arguably the firm was trading on misappropriated information in violation of Rule 10b-5. Moreover, if a firm deliberately delayed execution of a customer order to buy stocks in order to profit from its own position in a futures contract, such behavior could violate the Exchange Act.

Q.5. How many complaints has your agency received associated with the decline of last year involving the markets and exchanges falling under your jurisdiction?

Preliminary statistics indicate that the Commission received in excess of 25,000 complaints and inquiries during the first half of fiscal year (FY) 1988, for a projected 25% increase over FY 1987. 2/ This includes approximately 9,360 telephone complaints 3/ received from October 14 through November 27, 1987, as reported on in Chapter 12 of the Market Break Report. Approximately 5,000 to 6,000 of these telephone complaints are attributable to the market break. In addition, through March 31, 1988, 1,331 written complaints related to the October market break have been received by the Commission.

Q.6. How many of these complaints involved the small investor or members of the public?

The vast majority of complaints involve individual investors. The Commission analyzed a total of 1,283 written complaint letters regarding the market break in connection with the preparation of the Market Break Report. Over 97% of the complaints detailed in these letters were experienced by individual investors. Of these, 91% were from investors who

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2/ Although the total number of complaints has increased, the number of complaints alleging sales practice abuses declined by 3% from FY 1987.

3/ Due to the heavy volume of complaints, normal documentation of telephone complaints was not universally maintained. Thus, only approximately one-third of the telephone complaints were documented and tracked in the Complaint Management and Processing Index system.

wrote directly to the SEC or to one of the SROs, approximately 3% came from individual investors through a representative (e.g., Congressman or attorney), and 3% were from brokers writing on behalf of individual investors. The remaining 3% were divided between complaints from institutional investors and brokers themselves.

Q.7. Do you have a breakdown on the percentage of complaints that involved securities transactions as well as options on stocks and options on stock indexes?

A review of the 1,973 categorized complaints (1,283 letters) in the PC program database used for the Market Break Report identified 870 or 44% as related to equities. By contrast, 332 (16.8%) related to options. Index options accounted for 49.4% of the options complaints in this database. Approximately 11% of the complaints related to mutual funds. The majority of the remaining complaints did not specify an investment vehicle.

Q.8. Are you giving any consideration to possible changes that might increase "Customer Protection" for small investors? Are you considering any changes regarding suitability requirements?

In the area of customer protection, the Commission currently is pursuing several initiatives designed to ensure the smooth handling of customer orders and to increase customer confidence in the securities markets. For example, one of the Commission's highest priorities following the October market break has been to request and encourage the securities and options exchanges to increase the operational capacity of their automated routing, execution, and trade reporting systems. In this regard all of the exchanges have taken significant steps since the market break to enhance system capacity. The NYSE in particular is engaged in efforts to provide the capacity to handle routinely a 600 million share day by the end of 1988. The exchange has doubled the number of stocks on electronic display books, and has taken steps to reduce the number of orders that must be physically printed. In addition, all of the regional securities exchanges have taken measures to improve exchange communication with retail firms concerning problems and delays being experienced in exchange order routing and execution services, as well as to expand capacity.

Current self-regulatory organization ("SRO") suitability rules appear to provide appropriate customer protections. All SROs have rules that require registered broker-dealers, who recommend to a customer the purchase or sale of an option contract, to have "reasonable grounds" for believing that the recommendation is suitable for that customer given his or her stated investment objectives, financial situation and needs, and any other information known by the broker-dealer. Other rules require that no recommendation involving an opening transaction be made to a customer unless the person making the recommendation has a reasonable basis for believing that the customer is able to evaluate the risks of the transaction and is financially able to bear them. Other exchange rules regarding the supervision of accounts require that each member organization implement a written program for the review of the organization's non-member customer accounts and all orders in such accounts. See, e.g., CBOE Rules 9.7-9.10. 4/ Finally, SRO rules require that first-time options customers be provided with a copy of the "Options Disclosure Document," a standardized booklet published jointly by the SROs explaining the types of option products available and the risks of options trading.

Questions From Senator Tom Daschle

Q.1. What precisely has the securities industry done since October 19, 1987 to prevent a reoccurrence of a 508 point market decline?

The actions taken by the securities markets since the October market break are set out in detail in Section IV of Chairman Ruder's March 17 written testimony before the Committee. As noted in the testimony, the securities markets have taken significant actions in certain areas in response to the Commission's recommendations, particularly in the areas of operational capacity and enhancements and contingency planning and coordination. In this regard, we note that the Cincinnati ("CSE"), Midwest ("MSE"), Philadelphia ("Phlx"), and Pacific ("PSE") Stock Exchanges already have increased their systems capacity and are planning further enhancements. 5/ The NYSE

4/ Stock exchange rules are similarly restrictive, providing that every exchange member organization use "due diligence" (see, e.g., NYSE Rule 405) to learn the essential facts relative to every customer account carried by the organization. Stock exchange rules also require that, prior to approving the opening of an account, the approving person be personally informed of the essential facts relative to the customer and to the nature of the proposed account.

5/ CSE is upgrading capacity 50%. MSE has increased MAX capacity from 36,000 to 54,000 trades and by June 30, 1988, will increase capacity further to 60,000 trades. Phlx has increased PACE systems capacity from 12,500 to 17,500 orders per day and projects by year end that it will be able to handle 40,000 orders. PSE has doubled SCOREX capacity to 50,000 messages per day and within the also has taken several steps to increase systems capacity such as doubling the number of stocks on the electronic display book and increasing the number of printers on the floor. The NYSE's Operational Advisory Committee is currently planning for the next 600 million share day, and plans to be prepared for the first billion share day by 1989.

In addition, there have been several developments subsequent to the March 17 testimony. First, the Commission has approved proposals by the options SROs to raise margin levels for short index options positions from premium plus 10% of the contract value to premium plus 15%. (We note that following the market break index options margin levels were increased from premium plus 5% to 10%.) Individual stock options margin will be raised from premium plus 15% of the contract value to premium plus 20%. 6/ Second, the CBOE has submitted a proposal to establish new index options opening procedures that should reduce the time for conducting opening rotations and allow for more orderly openings in the Standard and Poor's 100 index option ("OEX"). The proposal, which was approved on April 29, 1988, establishes zones in which different OEX series will be opened by a lead market maker simultaneously with a main rotation conducted by an order book official. The lead market maker will establish opening prices and facilitate any imbalances. In addition, to participate in the opening, orders must be submitted 10 minutes, instead of 5 minutes, prior to the opening.

Third, the American and New York Stock Exchanges have reallocated stocks from two and six specialist units, respectively, and the NYSE Board of Directors has approved a proposal to enhance their procedures for allocating stocks to specialist units.

Fourth, the NASD has proposed several initiatives in the last few months in response to problems encountered during the market break. Among these are new requirements that all NASDAQ/NMS market makers participate in the NASD's Small Order Execution System ("SOES") and that SOES executions continue in an OTC/NMS security in the event of a locked or crossed market.

Fifth, as stated above, the NYSE intends to file a proposal concerning prohibitions on frontrunning using index futures positions. The proposal would clarify that just and equitable principles of fair trade would be violated if members

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next two years expects to be able to handle 100,000 messages per day.

6/ The Commission expects to receive similar rule filings from the other options exchanges.

take futures positions with the knowledge of an imminent execution of a portfolio or block in underlying component stocks that could affect the price of the index. Finally, on April 7, the NYSE Board approved a proposal to raise specialist capital. Under the proposal, specialists would be required to have the higher of either $1 million or enough cash to purchase 15,000 shares of each common stock the unit is registered in, taking into account the amount of shares that can be borrowed pursuant to margin requirements. Current rules require the higher of either $100,000 or an ability to purchase 5,000 shares of common stock. Accordingly, the proposal represents a significant increase over current specialist capital requirements.

Q.2.(a). Press reports say that NYSE Chairman John Phelan personally predicted for many months the NYSE "meltdown" which occurred in October 1987. Whatever the cause of that "meltdown," I assume that the NYSE would have prepared for that event. Yet, a recent report by the GAO concludes that 9 of 12 computer systems at the NYSE failed on October 19th and 20th and that the "NYSE was not prepared operationally for the volumes it experienced." It suggests the SEC should reassess its oversight role for automated systems. Why was the NYSE operationally unprepared to handle this volume?

The NYSE's automated systems generally work well to ensure prompt and effective order routing and execution services under normal market conditions. The NYSE simply had not predicted (nor had any other market participant) that the volume on October 19th and 20th (over 600 million shares each day) would more than double the previous record. In this connection, it is important to recall that both transaction and share volume proportionately increased on those days much more than did volume on either the futures or options exchanges. To put the pressure the NYSE systems were placed under in context, on October 19th and 20th transaction volume on the NYSE was 533,120 and 488,838 orders, respectively, compared to an average daily transaction volume of 165,200.

In early 1987, the NYSE determined to accelerate its technological developments, but did so with the expectation that its automated equipment should be prepared to handle trading days of 500 million by year end 1988, 600 million by year end 1989, and 700 and 750 million by year end 1990 and 1991, respectively. Subsequently, as described above, the NYSE has substantially increased its order handling system's capacity. Moreover, the NYSE has committed to undergo an independent audit of its systems capacities as well as to create an Operations Advisory committee of industry representatives to address industry wide issues. See Testimony Submitted for the Record by John J. Phelan, Jr., Chairman and Chief Executive Officer, NYSE, Before the House of

Representatives Subcommittee on Telecommunications and Finance, April 14, 1988, at 13, 18.

(b). What steps has the SEC taken since to reassess its oversight role for automated systems?

The Commission's oversight of the automated systems of the exchanges and the National Association of Securities Dealers ("NASD") has been appropriate. The Commission staff has in the past monitored, and continues now to monitor, the development by the exchanges and the NASD of automated routing, execution, and trade reporting systems. The Commission reviews proposed rule changes relating to these systems, conducts on-site inspections of exchange facilities, and meets with exchange and NASD officials to discuss systems improvements. More intensive review of the systems, including such aspects as software and hardware upgrades, would not be an appropriate allocation of the Commission's resources. The exchanges and the NASD are in the best position to review the capacity of their computer systems, and the staff currently is encouraging them to perform stress tests in order to isolate weaknesses and make remedial changes as well as obtain independent third-party reviews of the adequacy of those tests.

Q.3. What are the responsibilities of specialist firms? Do you believe that specialist firms have sufficient liquidity to perform the responsibilities to make markets in the stocks assigned to the firms? Is there sufficient liquidity for the marketplace to meet the obligations assigned to specialist firms?

A specialist is an exchange member who is, in effect, awarded a right to make a market in a particular security on the exchange floor and control the limit order book. Primarily a specialist performs the dual function of broker (holding and executing orders for others) and dealer (buying and selling in the specialty stock for the specialist's own account). In addition, the specialist undertakes certain responsibilities. The specialist's dealer responsibilities are often referred to as "affirmative" and "negative" obligations. Pursuant to the affirmative obligations, the specialist is obligated to trade for his or her own account to minimize order disparities and contribute to continuity and depth. Conversely, the negative obligation precludes the specialist from proprietary trading unless that activity is necessary to maintain a fair and orderly market.

In the Market Break Report, the Division noted that the capital base of equity specialists, while sufficient under normal market conditions, can become severely reduced during a major market break. The Division further expressed its concern that the capital levels currently required may not reflect the actual capital needed to ensure the maintenance of fair and orderly markets in today's conditions of heavier volume and greater volatility. In light of these concerns, the Commission staff is currently studying several modifications to the current specialist regulatory scheme. Specific to the equities markets, the staff is studying whether the elimination of the exemption from the Commission's Net Capital Rule would have an effect on specialist capital and liquidity. Further, the Commission staff is studying whether the exchanges should consider implementing more flexible financial responsibility rules, which would take into account the financial resources required to make markets in various types of securities (*i.e.*, liquid v. illiquid issues). As noted above, the NYSE Board also recently approved a proposal to raise specialist capital requirements to $1 million, or enough capital to purchase 15,000 shares of each common stock the unit is registered in, whichever is higher. Current rules require the higher of either $100,000 or the ability to purchase 5,000 shares of common stock.

As was noted in the Market Break Report, specialists increasingly are under pressure to accommodate transactions related to portfolio trading strategies. Because these strategies involve near simultaneous trading in a large number of issues, the Commission has recommended the development of trading posts at which "market baskets" of securities can be traded *en masse*, rather than having specialists in numerous issues and posts handle orders related to these strategies. The Philadelphia and American Stock Exchanges have proposed such an approach, and the Commission staff believes that the Midwest Stock Exchange is exploring a related product. The NYSE also has indicated that it is studying such a product.

Q.4. What are the impediments to accepting the Brady Commission report recommendation to establish a unified credit and clearing system?

The Commission strongly supports better coordination of securities and futures clearing corporations. Nevertheless, clearance and settlement of all futures, options, and stock transactions through a single entity is impractical in the short term and may be ill-advised in the long term. Existing clearing organizations serve the unique needs of the stock, options, and futures markets and allocate default and credit risks differently to meet the different requirements of those markets. These needs are best accommodated in separate clearing entities.

Unified clearance and settlement of related options and futures contracts could be advanced considerably, however, through the development of facilities for centralized clearance of options and futures contracts in a manner that has been proposed by the Intermarket Clearing Corporation ("ICC") and the Options Clearing Corporation. Establishing a single facility (or interfaced competing facilities) to hold both options and futures positions would facilitate credit decisions, enhance dealer and market liquidity, and reduce credit risks associated with those positions. The Commission is on record as supporting cross-margining (as did the Brady Task Force report), and currently is reviewing an ICC proposal regarding cross-margining, and, until recently, was awaiting related CFTC action.

Development of unified options and futures clearance facilities could be integrated with stock clearing organizations to form a network of interfaced, coordinated clearing organizations serving each of the different stock, options, and futures markets. Improvements must be pursued to expand current informal information sharing arrangements; to coordinate member payments to different clearing organizations; and to rationalize the time frame for those payments to permit members and their bankers to know their positions and risks and to permit timely movements of payments.

The Working Group on Financial Market Reforms reached a consensus on a number of these items. In addition, the Group endorsed consideration of several legislative initiatives to facilitate the development of an integrated clearance and settlement system. For example, the group agreed that bankruptcy laws affecting securities brokers and futures commission merchants ("FCM") engaged in intermarket activity (for their own and customer accounts) should be harmonized. Uncertainty concerning the treatment of intermarket positions in the event of broker-dealer or FCM insolvencies prevents, among other things, commitment of capital to finance dealer and customer positions necessary for liquid markets. It should be noted that the Commission recently approved a legislative proposal that would enable the SEC and CFTC to facilitate the development of linked, coordinated and centralized clearance and settlement systems.

Certain impediments to establishing a unified credit and clearing system exist, however, at the state level. The laws of the various states lack uniform requirements for transfers and pledges of options, and transfers and pledges of certificated and uncertificated stocks. State commercial laws also appear to hamper the development of safe and efficient facilities for clearance and settlement of cross-border transactions. Article 8 of the Uniform Commercial Code appears to preclude clearing organizations from using non-U.S. depositories to hold securities certificates outside the United States.

Q.5. Last week Stanley Shopkorn of Salomon Brothers proposed a shut down of the list features of the DOT system on the New York Stock Exchange ("NYSE") until the system can be expanded and other structural changes can be made. Do you believe this recommendation if implemented would reduce the volatility in the market place and help restore order? If the answer is yes: why is this recommendation not being implemented immediately?

The Commission has pursued actively efforts to reduce market volatility and restore investor confidence in our securities markets. While the Commission does not believe that the significant cost and ease of execution advantages provided by automated trading systems such as DOT should be eliminated by excluding program orders from those systems, the Commission recently approved on a six-month pilot basis a NYSE rule that prohibits members from entering index arbitrage-related stock transactions through any of the NYSE's automated order routing or trading facilities for the remainder of any trading day in which the Dow Jones Industrial Average has moved 50 or more points from the previous day's close.

The **Chairman**. Thank you, Mr. Chairman. What I am concerned about, and the reason why I wanted both of you here today, is that both of you have available to you the same data and you talk to many of the same people, but yet seem to have reached different conclusions about the role that index arbitrage and futures related portfolio insurance hedging programs all played on October 19.

As I understand it, the SEC concludes that, while not the sole cause, these futures-related trading activities exacerbated the market break. And Chairman Gramm, as I understand, the CFTC position, you conclude that there is not empirical evidence to support the theory that futures market hedging and index arbitrage interacted to cause a technical downward run or spiral of stock prices.

Now, are you both right? Or is one wrong? Let me start with Chairman Ruder. If index arbitrage significantly contributed to the downward spiral in the stock market, should not the arbitrage activity have raised prices in the futures market at the same time? Futures~~, of course~~, continued down. I think they continued down all day long. Yes. Throughout much of that day.

Mr. **Ruder**. I think the question I would like to answer is your broader question, Senator Leahy, the question of what the effect of various futures strategies was on the stock market on the 19th and 20th of October.

Your question relates to index arbitrage alone, and that is not the way in which the Commission and its staff have analyzed the relevant information. There were, as you know, several strategies involving the stock market and the futures market during and before the market crash.

One activity is index arbitrage which is essentially an activity in which one buys in one market and sells in the other when there is an observed price differential. In that case, the arbitrager is making a profit by trading in both markets. The existence of that arbitrage activity we have regarded as beneficial because it tends to bring the prices in the two markets more into line.

But there were some other strategies that were being pursued. One strategy is asset allocation in which one uses the futures market as a means of changing risk between equities and cash. And in that circumstance, a person who desires to sell securities may accomplish the same result by selling in the stock index futures market and substituting in that sense the sale of the futures products for sales in the stock market.

The other strategy which was in widespread use before the October 19 market break was portfolio insurance. That strategy proceeded, at least on the downside, on the theory that one could buy equity securities in a portfolio, and then if there was a market downturn in effect sell them by selling stock index futures in the faster futures markets.

The **Chairman**. Are you using the same definition of portfolio insurance as the CFTC does?

Mr. **Ruder**. I believe so. Our description, the theory of portfolio insurance really involves program or portfolio trading. I would have to ask——

The **Chairman**. But you have some nonfutures related basket trading in there, do you not? I mean I just want to make sure I understand this. You deal with it all the time, and I deal with it now and then. So I may just be missing a point here. But the portfolio insurance or program trading discussed in the CFTC report is all futures-related, while what you are talking about may be nonfutures-related. You may have portfolio insurance trading strategies.

Mr. **Ruder**. We may get into a question of what is futures related trading, and that may well explain the difference between the views of the two Commissions. Our view is that the portfolio insurance strategy essentially relied upon selling in the futures market, although there was a kind of backup theory that if the futures market was not available one would execute the portfolio strategy by selling in the stock market.

And what we observed was that there was in the stock market on the afternoon of October 16 significant index arbitrage trading in the last hour of the day, which had the effect of causing the market to go down over 100 points.

And there was in the morning of the 19th continuation of some significant index arbitrage, and throughout the 19th, but more clearly in the morning, portfolio insurance selling. What we observed by looking at 10-minute trading segments, was that there were periods during which the portfolio selling, particularly on the 19th and 20th, amounted to between 30 and 60 percent of the trading at that time.

And we also observed that some of those peak periods were periods in which the market had dramatic swings, either down or up. So our view is that one needs to call futures related trading is trading which results from portfolio owners trading in large baskets on the stock exchange because of their belief that there was liquidity in futures markets and stock markets together which would permit those strategies to be pursued.

The **Chairman**. Dr. Gramm.

Dr. **Gramm**. Mr. Chairman, I think that Chairman Ruder——

The **Chairman**. Are you in total and complete agreement with Chairman Ruder?

Dr. **Gramm**. Well, actually I would like to clarify a few comments because we have discussed some of these issues earlier on. I think that it is important to clarify what the terms are, and as Chairman Ruder mentioned, I think that where the difference comes between the CFTC and SEC is in what you call "futures related."

Let me state, first of all, that the term "program trading" just refers to the selling and buying of baskets of stocks or options baskets at the same time. That does not necessarily mean that it is all futures related.

There may not be any futures component in a trade. Now index arbitrage is, as I think was explained by Chairman Ruder, where you have individual traders who are taking both sides of two different markets in order to make their profit on the difference in the prices in the markets.

Index arbitrage—I do not think anybody would disagree—is very important. It is critical to the operation of efficient markets. It is something that is good. Senator Brady said that and I do not think that Chairman Ruder would disagree either.

Portfolio insurance is basically a strategy which is like a stop loss strategy, and it exists, and can exist, independent of futures, and indeed, those strategies existed before you had the stock index futures products.

Portfolio insurance permits a portfolio manager to more aggressively manage his portfolio. What has happened over time is that portfolio managers find that futures markets are good ways of hedging a risk for their whole portfolio, just the way that farmers have found that using the futures markets can allow them to hedge their risk or reduce their risk of price changes.

So portfolio insurance can mean that it is just all cash side sales, or it can include the futures market and stock index futures, but it does not have to.

Now the problem with talking about portfolio substitution or the substitution type theories or the futures related type trading, as Chairman Ruder and the SEC describes it, is that they use the term "futures related" very, very broadly, almost in the sense that because that market exists, people bought a lot more stocks than they would have otherwise.

Well, that gets a little bit into incentives and into the heads of folks. In terms of just the actual facts of what happened during the period of October 19, let me point out that index arbitrage was only 6 percent of the activity of October 19. Indeed, index arbitrage didn't occur substantially or was an insignificant part of activity after about 2 o'clock on the 19th and for the rest of the week because the systems were disconnected. The two markets became unlinked.

On the 19th, total portfolio hedge selling represented 20 percent of the selling on the S&P 500 futures contract. So that selling that occurred on October 19 on the S&P 500 was 20 percent.

The **Chairman**. Are these facts that a lot of people overlooked at the time?

Dr. **Gramm**. Right. And I do not think there is any disagreement over that fact. That is just solid empirical information. Furthermore, reported program stock sales on October 19 were roughly 15 percent of the New York Stock Exchange volume for that day.

Now there is another significant difference between the SEC report and the CFTC report, and that is that the SEC report broke the time periods down into 10-minute timeslots, as Chairman Ruder said. We did not go to that detailed a level, very frankly because we believe that it is very difficult to accurately break down that information, especially since a lot of the data were order entry times rather than order execution times so that allocating what happened and what it might be related to on both sides of the market is a very difficult process.

And so using the 10-minute periods, very frankly, results in more errors. And also when you stop and think about it, if you place an order that is a large order to sell, as you look at narrower time periods, you will find a time period where it dominates that time period. In other words, one could theoretically find a time period for which index arbitrage was 100 percent of volume or appeared to be much larger.

So we have some questions about how you can allocate accurately into these 10 minute time periods and we have tended to stay away from that. And I think that is where our differences lie. And Chairman Ruder, I do not think that you would disagree that in terms of what is futures-related, you have a much broader view of what is futures related.

In our view, there was a lot of selling on the cash side. One mutual fund alone sold about 25 million shares during that period, and that is a large amount, but that was on the cash or stock market side only.

The **CHAIRMAN**. Chairman Ruder, you want to respond to that, and then I am going to yield to Senator Bond, and start going 10 minutes, 10 minutes, 10 minutes.

Mr. **RUDER**. Yes. I think the question with which people have been concerned is whether or not there was influence on the stock market because of large institutional portfolio selling. Our belief is that there was. I may say that it is correct that we were looking essentially at order entry information, but I may point out to you that from 1 o'clock to 2 o'clock on October 19 when the weak midday market rally was dramatically reversed, index related selling constituted over 40 percent of New York Stock Exchange volume in S&P 500 stocks and over 60 percent during three separate 10-minute intervals.

It is our belief that this concentration of selling in portfolios came in large part because of the institutional belief that they would be able to sell in either the futures market or the stock market in large quantities; this belief was incorrect. And in that sense, we think that that is an extremely important point to recognize, and we are not pointing any fingers of blame on the futures market because this happened.

All we are saying is that one must recognize that this large portfolio selling by institutions at crucial times during the market break had the effect of causing the market to go into steep decline. And that is, I believe, to be the problem that we need to address. I think that one of the reasons that some of the demand came to the stock market during that period was that the trading which normally would have taken place on the futures market could not be effected there at the same price that it could be effected on the stock market.

So when the futures market prices dropped precipitously, and there was not a market, when we began to see a discount from the cash price, that demand, which normally would have been in the futures market, shifted to the stock market. And the effect was to introduce a large volume of trading in the stock market, coming from the institutions pursuant to a strategy in which they had expected to use futures. We have had reports that there was one seller who sold 7,000 contracts on the futures market on Monday. That is about $1 billion worth of contracts.

And then, when the futures market began not to be able to absorb selling demand, that demand moved to the stock market, and brought that demand into the market itself.

Dr. **GRAMM**. Mr. Chairman, pardon me, but I have had Commissioner Hineman here and I have been very impolite in not introducing him. I would like to enter his presence into the record. He was Acting Chairman at the time, and I do not know if he has anything to add.

The **Chairman**. This committee has always felt privileged to have Commissioner Hineman here. He has been a rock that we have relied upon for years in testimony.

Dr. **Gramm**. And I know he is not shy so he would have jumped in if he needed to. But I would like to add a slightly different view about large institutional portfolio managers' selling. I guess one can also view the situation this way—that portfolio managers are managing funds and managing portfolios for a lot of people.

And they are managing them aggressively.

The **Chairman**. Excuse me just a minute.

Dr. **Gramm**. Yes.

The **Chairman**. Senator Daschle has to go to the Finance Committee for another matter, and I was just going to mention that if you have questions for the record, we will be glad to submit them.

Senator **Daschle**. I will.

The **Chairman**. And I appreciate your being here very much. Thank you.

Senator **Daschle**. Thank you.

[The questions of Senator Daschle with responses from Mr. Brady can be found on page 16.]

The **Chairman**. Dr. Gramm, go ahead.

Dr. **Gramm**. At any rate, if institutional investors are managing portfolios, and if the stock market is going down, they may want to sell for whatever reason. And a lot of people wanted to sell on that day. My view, then, is to see that the systems work well, so the circuits do not get overloaded, so that if people want to sell, they are able to sell and maybe change into some other security.

I think that where Chairman Ruder and I differ a little bit on what is futures related and the extent to which we are willing to delve into people's incentives about their desire to sell. And I think as a regulator I want to make sure that if the market is going to reach its appropriate level, let us make sure it reaches it in an orderly fashion without creating a panic sell, and let us make sure that the systems are there in order to reach those levels.

So we have to remember that the institutional selling or the large selling that occurred, was, in large part, being done on behalf of a lot of small individuals.

The **Chairman**. Senator Bond.

STATEMENT OF HON. CHRISTOPHER S. "KIT" BOND, A U.S. SENATOR FROM MISSOURI

Senator **Bond**. Thank you very much, Mr. Chairman. I have had an opportunity to visit this question previously since I also serve on the Banking Committee so I have been able to express my confusion to our distinguished witnesses previously. I would like to have submitted for the record a statement that I was going to introduce at the beginning.

The **Chairman**. Without objection, it will be entered into the record.[1]

Senator **Bond**. I certainly appreciate your calling this hearing. Previously, particularly before the Banking Committee, I and other members of the committee have encouraged the regulatory agencies, the exchanges, the self-regulatory organizations, to take steps on their own to see that panic driven price moves, either up or down, are avoided in the future.

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[1] See page 7 for the prepared statement of Senator Bond.

It is obvious that we cannot avoid market declines anymore than we would want to avoid market increases. It has been the price-insensitive moves or the seeming panic that worries so many of us. I think Chairman Greenspan has testified that now much of the overbuying has been washed out of the stock market as of October 19, and we are in no imminent danger of another October 19.

But I have been receiving comments from people who are professionals, actively involved in these markets, who express a very grave concern that what has been done so far is not adequate to avoid a panic. We have asked that the regulators and exchanges put steps in place that would prevent this panic, even if the market should be overbought or oversold.

Do you think we have reached that point so far? Do we have enough regulatory protections in place to avoid another panic?

Dr. **Gramm**. Let me reiterate, in my view, the futures market performed quite well that day. And you did not have failures. I think one thing that can cause failures is a concern that a clearinghouse may go under. Well, that did not happen, but nonetheless, there have been a lot of actions taken by the exchanges to enhance financial security to prevent concerns that someone may go under and thereby cause large ripple effects.

I think that is where you can create some panic, if there is a perception that someone big may go under. There has been a lot of, I think, very strong action that has been taken on the futures side with respect to addressing those concerns.

The information sharing that is going on, the sharing of pays and collects, information on margins, for example, provides more information that, again, can alleviate uncertainty. The increased coordination and cooperation that we have laid the groundwork for, we are continuing to build on. Again, that can avoid confusion which could lead to panic.

And finally the emergency price limits that I talked about are in existence now in the futures market but they are not yet coordinated between the markets. So, in the area of circuit breaker mechanisms, that work is not finished there yet in my view. Chairman Ruder.

Mr. **Ruder**. We have in our report detailed the steps which have been taken. They really fall into three areas so far, and the most important from our point of view that we have been able to accomplish is something called stock market enhancement. We have had reports from all of the markets, the national exchanges, both the New York Stock Exchange and the American Stock Exchange, the regional stock exchanges, and the options exchanges and NASDAQ, the over-the-counter market, that steps are being taken to improve the order routing and execution systems of all those exchanges.

And we are very pleased that is going on. It is a step that we think is important. We have also communicated with the New York Stock Exchange and asked particularly there and in the American Stock Exchange that strong consideration be given to increasing specialist capital, and they are looking closely at their specialist capital rules.

We are monitoring that development, and we expect to have some improvement there. We are also looking at—we have encouraged the exchanges to look at specialist performance, and there the specialist performance review has resulted in the transfer of specialist posts from one specialist to another in both the New York Stock Exchange and the American Stock Exchange. And I may say that is quite unusual in terms of past history.

With regard to circuit breakers, however, I do not believe that we yet have in place a coordinated system of circuit breakers or a coordinated margin program which will provide us with the emergency procedures which we need in the markets. And it is, I think, very important that the process which has begun, the exchange of views between the exchanges, and the exchange of views between the self-regulatory organizations on this, be continued and be pursued at as fast a pace as it can.

But I simply cannot give you the assurances that we have fixed the system yet, Senator.

Senator **Bond**. How long will it take you to do it? When we can expect that you all might come back before us or other committees and say that we think we have a good means to prevent the kind of panic break occurring again? I commend you for the steps that have been taken to improve the markets. Those things that you have outlined are definitely steps in the right direction.

But how long do you think it is going to take you to put together a system?

Dr. **Gramm**. Actually, I want to turn to Commissioner Hineman because I think he makes a very good point, that confidence in the systems—that they do not break down—is important. And there is already a lot that has been done on that.

Now the question is can we ever get to a point where we can say everybody out there thinks that we have enough safeguards in the system. It may be hard to say it is done; this building is finished. I think what we will find is that markets change all the time. We have done a lot in response to October 19, but I think that there will always be more. We can always look to refine things.

Obviously, there are more immediate projects that we think ought to proceed more rapidly now. But I would not want to then say it is done and let us just not pay anymore attention to this. Because as Chairman Ruder said early on, new products can cause volume volatility. Very frankly, new products are what this country is made of. And new products and innovation on stock markets and on the futures markets are also important.

And things may change again. Not only within this country but internationally, globally. So very frankly, one's work will never be really just finished so that we can sit back.

Senator **Bond**. Well, I realize that. And we have taken steps to restore confidence in the market, but restoring confidence in the market is merely getting back to a confidence level where we were prior to October 19 when very few people thought this could happen. So let me ask another question that is particularly troubling, again from some people who are active in the markets.

We all know that there is rivalry between and among the various futures exchanges and the stock exchanges and they all compete for business, as they should. Again, several people who are active in a number of those markets suggest that in response to October 19, certain rules and regulations have been promulgated or proposed that would do more to put one exchange or another at a disadvantage vis-a-vis its competitors than to protect against another October 19.

And I wonder if you are concerned about the problem, if you have seen any such problem, and if you have taken any steps to discourage the imposition of such intraexchange or intramarket competitive advantage?

Dr. GRAMM. In my view, the function of the CFTC is is to ensure the financial integrity of the markets. The CFTC has not always agreed with its regulatees, but I do see, obviously, you have competition not only among and between the exchanges, but between exchanges on the futures side and the stock market side.

My approach has always been to look at the proposal and determine what its impact will be on markets. I do think there are some proposals that are floating around which would basically raise competitors' costs of doing business. But I am an economist, and one expects that. People will use any chance they can to advance their own interests.

But as a regulator, my job is to look at the proposal itself and evaluate its merits and what it is supposed to be doing with respect to the integrity and the efficiency of the markets themselves. So that is my perspective.

Senator BOND. The reason, obviously, that I raise it is that we do not, at least I do not have the expertise to recognize the difference. I am glad to hear you state that you are very much concerned about that problem because it is something that is going to have to be solved at your level. We are not competent to handle it.

Mr. RUDER. Could I respond briefly to that last question, and indeed, your first question? Our report suggested that an increase in speculative margin for nonlocals, nontraders in the futures market would be desirable, and in a footnote we indicated that we thought raising that margin to the 20–25 percent level would be a good first step, so that the markets would be slowed down. We recognize that if that were to happen it would impose some economic costs on the futures market, but we note as well that the futures market does not have a short sale rule, it is a much more highly leveraged market than the stock market, and does not have a physical settlement requirement.

Now in terms of your first question about whether there is likely to be agreement, I think it is fair to say that I could represent Commissioner Gramm's response that we have not had an overwhelmingly affirmative response to that from the CFTC or the futures industry. There seems to be some opposition to our margin request.

So at this point, I think that the bargaining or the willingness to come to grips with that particular matter represents a suggestion for agreement which is really very far apart.

Now, I represent the Securities and Exchange Commission, and we have a unanimous Commission position in favor of such a margin requirement. We do not yet have a Commission position with regard to the kinds of other circuit breaker matters which are being suggested, but we are in the process of looking at it. Since it appears that the margin matter is one of great contention, we are looking at whether some of the second-best solutions may be desirable.

And I am hoping to be in contact with the CFTC particularly to see whether we cannot reach some agreement on some of those other matters. We had a meeting yesterday in which I think we came quite far along toward recognizing some possible areas of agreement. I would not want to specify those now because they are rather delicate as far as we are concerned.

And we do not, either of us, have our Commissioners with us. But I would like to say that there can be progress in various areas.

Dr. GRAMM. Excuse me for jumping in. I really do think that on the margin issue that there is not as much disagreement as you think. If you look at it this way, that the SEC recommended higher margins, and indeed, there are higher margins, at least higher initial margins, that have been enacted by the exchanges.

Mr. RUDER. Well, the speculative margin pre-October requirement in the futures market was 4.7 percent. It is now based upon an $18,000 figure in the futures market at 13 percent, and that means that with a $18,000 investment, a futures trader can control $135,000 worth of stock. That is quite a small margin compared to the 50 percent margin on the stock exchange.

Senator BOND. But not everybody has that 50 percent margin on the New York Stock Exchange and the futures trader has to settle up every night; is that not true?

Mr. RUDER. That is true that the futures trader has to settle up every——

Dr. GRAMM. And also we have speculative position limits. Speculation, as you know, in the futures market is very small, only about 5 percent of market. The futures market is primarily a market for hedgers so that you do not use leverage to increase your exposure. What you are doing is you have exposure already, and you use the futures market to reduce your exposure to price risk.

Mr. RUDER. The hedging margin on the futures market is only $10,000 instead of $18,000 which is a lower margin still. And I would point out that the only people who do not have a margin requirement on the stock exchange are the specialists. Those are the people that would be equivalent to the locals in the futures market.

Those specialists have essentially a so-called good faith requirement. The good faith requirement means that they can go to their banks, and the effective margin rate which the banks apparently are requiring them to put up is between 20 to 25 percent. The large institutional traders do have a margin requirement, but in fact, they tend not to borrow. They tend on the stock market to pay in cash, not use margin, but they do, I will admit, have a 5-day settlement period in which they are not required to put up the money.

There is a difference, and we do not, in any sense, indicate they are the same. But we do believe at the present time those margins are not equal.

Senator BOND. I wrote to you, Chairman Ruder, on March 2 because of some questions we had on pages 210 and 211 of your report. It seemed from some of the research my staff has done that the exchanges for physicals on October 14–16, you indicate much of it was affected off the New York Stock Exchange in the London market. One of the possibilities that struck us was that broker dealer A could swap futures in the London market to broker dealer B for a basket of covered stocks. B then was short the stocks, but A was long the stocks, and A very shortly thereafter could come into a falling New York Stock Exchange market, could dump those stocks, not having to abide by the uptic rule on short sales, driving the stocks and thereby the futures down, permitting the covering of the futures at a much lower price, thereby making a substantial profit from driving the market down.

Is that possible? Have you seen any evidence of that?

Mr. RUDER. It is possible, sir. There was, as we understand it, some physical settlement transactions in London off-hours, and circumstances in which the effect was that it was possible for someone in the United States to avoid the short sale rule on the New York Stock Exchange by swapping stock for futures and ending up, in effect, with the right to sell in the market without the short sale rule applying. That is correct.

Senator BOND. Is there anything contemplated that would prevent that? Is that not the kind of transaction that ought to be inhibited?

Mr. RUDER. It is one of the areas that we are looking at. I would have to look and see both whether we have the power to do it, and if so, what kind of rule we would suggest either directly or through the New York Stock Exchange to accomplish that result.

Senator BOND. Finally, I would just ask Chairman Ruder to comment on circuit breakers, whether they are appropriate in the stock market, whether you believe it is important for the public to know when these circuit breakers are triggered, and whether, in effect, the failure of a specialist to open the stock or closing of the stock has, in fact, had the impact of an unofficial, unannounced circuit breaker? Is a system of explicit announced circuit breakers preferable to the current system?

Mr. RUDER. That is a very heavy question, Senator. I would point out first that we did on October 20 have approximately 90 stocks that were closed because, under the rules of the stock exchange, they were not individually able to be opened, or they had closed, for one reason or another.

And 90 stocks included a fairly large percentage of the value of the S&P 500. So we had essentially a minitrading halt on the New York Stock Exchange, indeed enough so it triggered the 20 percent rule on the Chicago Board Options Exchange and caused that S&P 100 index option to shut down.

So that is a kind of closing which one cannot avoid if it happens, and the real question is whether one ought to put in some sort of preordained closing levels based upon index prices? I have to speak personally here because I have no Commission position on any of this, but my own thinking is that I have moved more closely toward the utilization of some sort of coordinated closing of the futures market and stock market based upon some preagreed figure—but not an all-day closing such as one has when price limits are in effect on the futures market. A pause, if you will, to look to see whether or not sufficient demand will come into the market.

But that is as far as I can go now even personally, and it is still a germ of an idea that requires me to look at the various aspects involved in it.

Dr. **Gramm**. Actually I do think that this notion of a short trading halt is being explored by some among the exchanges, and I think that is an interesting notion worth exploring. As you know, the futures markets are much more comfortable with price limits and trading halts than the stock markets.

Senator **Bond**. Mr. Chairman, I apologize for intruding upon your time and that of the witnesses. I found the answers to be most informative. They have heightened my confusion to a degree and that is about as much as I can handle for the day.

The **Chairman**. Just think of the fascinating things that lie ahead of us as we go back to our home States over the weekend carrying all this material to read.

Mr. **Ruder**. We have an extra copy of our report here if you would like it.

The **Chairman**. I understand. I have it. I actually read some the other night for awhile. [Laughter.]

Mr. Ruder, in your testimony you discuss some recommendations before the Banking Committee which you left out of your formal presentation to this committee. These include the reporting of program trades and other large trading activities on a consolidated tape, as they occur, to the SRO's and to the Commission for surveillance purposes.

I note this because I am interested. I would think that better information systems are essential now. So maybe you could tell me something. Has either the New York Stock Exchange or the SEC adopted or instituted rulemaking proceedings to enhance stock information systems? Specifically, have you required large trader reporting or instituted audit trail enhancements which would better identify program trading and customer designations?

Mr. **Ruder**. We are in cooperation with the New York Stock Exchange right now, in talks with them about the means by which they can accomplish that. And they are positive about reporting.

The **Chairman**. But nothing new has been done yet?

Mr. **Ruder**. We do not have a formal rule proposal or a Commission rule proposal dealing with that. There is one part of it that will require legislation, I believe; that is the question of whether we are able to identify the exact customer who is engaged in large trades. There is a point at which our jurisdiction ceases after we get, for instance, to a bank or other nominee holder, and we are not able to get behind that trade to require who the actual person engaged in the trading to report to us.

The **Chairman**. Does the New York Stock Exchange SuperDot System identify particular program trades and whether they are arbitrage related?

Mr. **Ruder**. I do not believe so. But I would want to confer with Richard Ketchum, my Director of the Division of Market Regulation. It does not yet do that. We have in our report, as you may know, suggested that there be tape display or automated system display of portfolio trades. And we will continue to pursue that.

The CHAIRMAN. Let us talk about specialist capital and specialist performance issues that you and I talked about this week when I came back to Washington. I was concerned about the SEC exempting specialists from capital reporting requirements. As I understand your position, monitoring specialist capital is a job for the exchanges. Well, has the New York Stock Exchange specialist capital fallen too low?

Mr. RUDER. With regard to the first point, we do rely upon the exchanges to monitor specialist capital, but we do receive their Focus reports which give us some information about specialist capital.

I think it is fair to say that the specialist capital requirements did fall too low, but only too low in regard to then known facts. What we found out in the October 19 and 20 market problem, with the specialists who thought they were specialists in individual stocks and thought that they would then have upstairs market-making liquidity coming from the major block traders upstairs, was that upstairs liquidity was not available when they were called upon to be essentially specialists responding to portfolio trading.

So when the portfolio trading came, these specialists did not have, many of them, adequate capital. Many of them did, however, and I think I would like to say publicly that the criticism of the specialist system as such is somewhat overblown.

We had a great many specialists who stood on the floor of the stock exchange and bought and bought and bought during that downturn. Their specialist capital positions, long positions, more than doubled during that period.

There were, of course, some isolated instances when the specialists did not perform, but they were the only group in the United States that had an obligation and fulfilled an obligation to buy when everybody else was selling. And I really am very positive about what happened there.

The CHAIRMAN. Let me explore this a little bit. We have just gotten some information from the New York Stock Exchange, which we have not yet had a chance to fully analyze, but which appears to demonstrate that specialists' capital doubled between 1981 and 1987.

Mr. RUDER. This was capital, yes?

The Chairman. Yes. And the question I have for you, is this: Do you know how much the average daily value of stocks traded on the New York Stock Exchange has increased during that time? I understand it is about tenfold.

Mr. RUDER. Between what time, sir?

The CHAIRMAN. 1981 and 1987?

Mr. RUDER. Well, I could tell you between 1982 and 1987, the Dow went from 750 to approximately 2750. That is a very rough indication of approximately a fourfold increase in the Dow Jones value.

The CHAIRMAN. The rough figures I have show that during the same time when the specialists' capital doubled, the average daily value of the stocks traded on the New York Stock Exchange increased about tenfold.

Mr. RUDER. I do not have a way of responding.

The **Chairman**. Either way, there is a significant difference between the capital and the——

Mr. **Ruder**. Yes. But I may indicate to you that the——

The **Chairman**. What I am saying is either figure, 4 times, 10 times, whatever.

Mr. **Ruder**. Right.

The **Chairman**. The specialist capital had eroded significantly as a percent of the average daily value; is that correct?

Mr. **Ruder**. If your figures are right, yes, the answer is yes.

The **Chairman**. Would that impede the ability of specialists to lean against a downward trend?

Mr. **Ruder**. Yes, in a sense. But I should repeat for you that, as the system developed, we had an upstairs market which, began to develop in which, when there were large trades coming into the market, that is an institution with a 10,000 or 20,000 or 100,000 share lot, that institution would essentially trade with a large wholesale marketmaker, a Salomon Brothers, or Goldman Sachs, away from the floor, and that trade would then be brought down to the floor and executed on the floor under rules which require the public orders to be swept in.

But the reverse happened. When a specialist would begin to find that there was a floor execution order coming down which was greater than the specialist capital, the specialist would take it upstairs and ask the upstairs marketmaker whether the upstairs marketmaker could absorb that volume.

So you had an informal system by which unusual market problems could be absorbed upstairs.

The **Chairman**. I ask you this because we are really looking at what happens in extraordinary circumstances, extraordinary circumstances which many people feel could reoccur. October 19 could reoccur.

You said that the New York Stock Exchange itself monitors the specialists, but do you not think that you at least ought to be getting the information that the specialists provide to the New York Stock Exchange?

Mr. **Ruder**. We do. I say we do get the Focus reports.

The **Chairman**. You do?

Mr. **Ruder**. Yes. We have access to those reports.

The **Chairman**. You have access, but do you get them on a regular basis? Do you analyze them? Do you follow them at all?

Mr. **Ruder**. We get them and we confer regularly with the New York Stock Exchange with regard to specialists who appear to be in trouble.

The **Chairman**. The reports that you get are they daily or quarterly reports?

Mr. **Ruder**. They are not daily reports, I know that, but we do——

The **Chairman**. The New York Stock Exchange gets daily reports. Is that correct? I am asking.

Mr. **Ruder**. I am corrected by my Market Regulation Director. The New York Stock Exchange gets daily reports but these are not Focus reports. They are daily reports which the exchange has. I do want to say that the New York Stock Exchange is charged with very strong regulatory responsibilities, and they have a very large surveillance staff and our reliance upon them is reliance upon a staff with which we have very great contact.

We not only rely upon them, but we inspect them, and every year we send them a letter telling them the extent to which their system is not up to snuff as far as we are concerned.

The CHAIRMAN. Well, I may want to followup with some questions on this. But as time is running out, I will just go to one last thing. I sent both you and Chairman Gramm a draft bill of mine creating an Intermarket Coordinating Council, and I have received a reply from Chairman Gramm which we will make part of the record and thus public.

[The letter of Dr. Gramm follows:]

COMMODITY FUTURES TRADING COMMISSION
WASHINGTON, D.C. 20581

OFFICE OF
THE CHAIRMAN

March 14, 1988

The Honorable Patrick J. Leahy, Chairman
Committee on Agriculture, Nutrition, and Forestry
United States Senate
Washington, D.C. 20510-6000

Dear Chairman Leahy:

Thank you for your letter of March 4, 1988, requesting the Commission's views on a bill you are considering introducing that would establish an Intermarket Monitoring Council to coordinate surveillance and Federal regulatory policy over the operation of markets in stocks, stock options, stock index options, stock index futures and stock index futures options.

We understand that the Council would be comprised of the Secretary of the Treasury, the Chairmen of this Commission and of the Securities and Exchange Commission, and the Chairman of the Board of Governors of the Federal Reserve System who would also be Chairman of the Council. Among other things, the Council could assess and coordinate the collection of market and financial data by these agencies, review financial and other relevant regulatory programs and requirements and make recommendations to the agencies for action and improvements. The Council would be required to report to Congress within 180 days of enactment of the bill on whether and, if so, how the various market clearing systems should be linked. The Council Chairman would be empowered to require futures and securities exchanges, registered firms and professionals and any other person to provide any data or information he requests. Finally, the Council Chairman could declare a "market emergency" and order any exchange, registrant or other person involved in the futures or securities markets to take action as may be appropriate to address the emergency.

As you know, last month the Commission released its final report on the October 1987 market break shortly before it testified before the Senate Banking Committee. While the Commission did not propose any legislative changes at that time, we did endorse the Brady Report's notion of a coordinating group composed of the federal financial regulators. In the Commission's view, enhanced coordination among the agencies would enhance surveillance of the markets, strengthen the existing self- and governmental regulatory systems and assure appropriate and considered responses in times of severe market stress. Our testimony also detailed the steps taken since October 1987 to achieve these goals. Progress continues to be made as we, the other regulators and the affected exchanges have shared viewpoints and initiated changes to trading rules and information sharing processes. I will update you on these efforts when I appear at the Committee's hearing scheduled for Thursday of this week.

In view of the progress that has been made, the Commission believes that legislative action is premature. In particular, we believe it unnecessary to create a super agency to oversee the existing financial regulators or to formalize a framework for coordination that already has been established and is being regularly and increasingly utilized by the existing agencies and those subject to their direct jurisdiction. Improvements to the systems for the collection, sharing and assessment of market data are already in place or are being designed under the present regulatory structure. The agencies, exchanges and market users are in continual contact and are actively reviewing present requirements with a view toward suggesting and initiating changes and refinements. The report to Congress on the need for a linked or unified clearing system called for by the bill can easily be folded into these efforts, and we certainly would participate in such a joint study without a legislative mandate.

For these reasons, we see little to be gained by a statutory Council such as that envisioned by the bill. To the contrary, we believe the Council would impose a duplicative layer of regulation coupled with unwarranted associated costs on the taxpayer and on the affected industries. Further, creation of yet another independent agency could in fact hinder the type of coordination the bill seeks to achieve. For example, interposing a new agency staff between the Council Members and present agency staff can only complicate existing lines of communication. Similarly, the procedural requirements of the Government in the Sunshine Act could inhibit the day-to-day or other informal discussions between or among the Council Members if these contacts were to be considered meetings of the Council under the Act rather than conversations of the individual Members.

We also have serious reservations over the powers vested in the Chairman under the bill. We understand that the Chairman may require any person to provide information, whether or not the person is a regulated firm or individual, has a position in the markets or is under investigation. In our view, such sweeping information gathering powers should be granted to Government officials only in the most compelling circumstances. Further, as we testified before the Senate Banking Committee, effective coordination among regulators requires a spirit of mutual partnership and cooperation. This cannot take place when one participant can always dictate the outcome. Yet, under the bill the Chairman would be able to take action--including the declaration of a market emergency and issuance of accompanying orders--even when the other three Members of the Council believe that no action or much different action would be called for.

Although the Commission does not support this bill, we commend your leadership in focusing the attention of the affected agencies and exchanges on the complex issues identified in the Brady Report. I trust that you will view our comments as constructive as you and the Committee consider possible legislative action. Commissioner Hineman and I look forward to appearing before you later this week to apprise you of recent developments and to answer any questions you and the other members of the Committee might have.

Sincerely,

Wendy Gramm

Wendy L. Gramm
Chairman

The CHAIRMAN. I think it's fair to characterize her response as not an enthusiastic and overwhelming endorsement of my idea.

Dr. GRAMM. It is a good club, Mr. Chairman, which is what you indicated you wanted it to be used for. [Laughter.]

The CHAIRMAN. And Chairman Ruder, what are your thoughts about it?

Mr. RUDER. I agree with Chairman Gramm that it is a significant club. I believe that all of the substantive questions which you suggest should be pursued by a formal organization are already being pursued, and that we are making progress. I do not agree with you, sir, that there should be a superregulator who is given emergency power over the other agencies.

I think the only result of that would be that for that regulator to exercise power responsively that regulator would have to establish duplicate staffs in what I would regard as a wasteful manner.

The CHAIRMAN. But now that the White House has circulated a draft executive order which would do basically the same thing as my bill, would you accept their invitation to participate in that council?

Mr. RUDER. If one were extended to me, I certainly would.

The CHAIRMAN. Chairman Gramm.

Dr. GRAMM. I think it is a good idea.

The CHAIRMAN. The same idea.

Mr. RUDER. Without the club. Without the ability of a single party to make decisions.

Dr. GRAMM. Yes.

The CHAIRMAN. The draft Executive order also says that the group will study the market-related issues for 90 days and then make legislative or regulatory changes.

Dr. GRAMM. Or other recommendations.

The CHAIRMAN. So, in effect, we are talking about, from last October 19, over 7½ months, before conclusions are reached. Is that an overly cautious approach?

Dr. GRAMM. Mr. Chairman, I think you are little prescient, that the 90 days gives you some concern, because it is my understanding that now it will probably be a 60-day timeframe. There are those who want it even shorter, but I believe there are a number of complicated, interesting issues to be addressed. It is my understanding it is going to be 60 days rather than the 90.

The CHAIRMAN. Are your two agencies working together on a uniform clearing system? That is one of the things that we have heard talked about.

Dr. GRAMM. Well, we agree, I think, on the recommendation there. We are working right now with existing information systems to share the pay and collect information. Indeed, the futures exchange is already implementing that, but the Options Clearing Corporation will be included in the near future, and there is discussion for including information from the NSCC which is the securities clearing corporation, but the whole margining system is so different that even sharing the information will not be perfect.

I have real concerns with a unified clearing corporation. I think the system worked well and has worked well for the futures industry with separate clearing organizations. Unlike the securities area, in the futures industry those clearing organizations do have final responsibility for being the seller to every buyer and the buyer to every seller. And so there is a financial risk there in the organization itself.

And I believe that the system as it exists, with risk dispersed and managed by different organizations, is a good one.

The CHAIRMAN. Commissioner Hineman, you wanted to say something.

Mr. HINEMAN. Yes. I think in this area I agree with Chairman Ruder and with my Chairman, there is an awful lot that has been done, and this, in my opinion, is one of the most crucial areas there is, this sharing of information in the pays and collects, because it has more to do with regaining and with holding confidence in the system than any other thing that I know of.

I think that we could get hung up on common clearing and some of those things to the point that we delay action for too long a period of time. I think there would be many legal, maybe even statutory changes necessary to go to common clearing.

You run into some problems because the systems are not the same. You do not run into those kinds of problems with a simple sharing of information, and that is something that we can do a lot quicker if it looks like there needs to be common clearing, which our organization does not think is necessary. It could be looked at.

But for the immediacy of the issue, you can do those things by cooperation, coordination and sharing of information and do it now, or do it pretty soon. And I would say in response to Senator Bond's question about when we will have all this done, this involves a lot of hard work and a lot of very technical different issues to put in place till it works better. I do not think you are ever done.

I hope we never think we are done, and we continue to work on that. But I can assure you that there is a lot more coordination and working on this at various levels, going on, than anyone has any idea. And there is a lot going on at the exchange level, too, and we have encouraged that.

The CHAIRMAN. Let me go to your prior point, the problems of bringing them together and the fact that a unified clearing system is not an easy thing to accomplish. Can it really be done, especially if you want to include cross margining, if stock settlements are on a 5-day basis?

Mr. HINEMAN. That is the big problem, and there are some others. There are some very real road blocks there that I do not think we want to take the time right now to go around. I think we want to get on with it.

Mr. RUDER. May I just say that I think there is much more possibility of meeting the cross margining problem by having agreement between the futures clearing corporations and the options clearing corporations. Options index clearing is on a next day settlement basis, similar to the futures exchanges.

When we talk about cross-margining, we are really talking about being able to cross-margin options position against futures positions. I do think there is room for regulatory analysis as to whether a system could not be developed to make the interchange between those two markets more equal.

On the other hand, when we are talking about stocks, I would agree that the concept of a unified market is probably not worth the cost. It is possible to have separate clearing systems for futures and for stocks which are quite different, but also to increase the speed with which the trades are compared.

Our report has urged that there be a trade comparison on either the same day, at the end of the same day, or on T plus 1. If you can get trade comparison, then you can have at least some risk analysis as to the positions of firms and even individual traders.

And I think it is a desirable thing for the financial system to be able to identify those participants in the unified futures and securities markets who have put themselves into risk positions which are too large. That would be, to me, a good result from an information exchange system which I think can be developed without unifying the two systems.

The CHAIRMAN. Chairman Ruder, you have suggested that the regulation of stock index futures be transferred to the SEC. I have said before I think that that would result in a confusing and conflicting system of intramarket regulation of the futures industry. Let me just ask you one question.

What do you think the CFTC has done or has not done that is a problem? What do you think it could do better?

Mr. RUDER. I would not want to criticize my sister agency overly. We think that they by and large do a good job in their regulation.

The CHAIRMAN. Then why transfer stock index futures to the SEC?

Mr. RUDER. The point is to me quite a logical one, that if you have a unified market, if it is a single market, then it makes quite good sense to have the same regulator. And we are not talking about regulating all commodities. We are not even talking about regulating the general area of financial futures, T-bond futures or bond futures or nonequity futures.

We are talking about the recognition that the futures derivative index market, the equity related futures market, has an effect on the stock market. And it is my view that there should be a single regulator or a single whistleblower, and the logic of the matter drives me to the Securities and Exchange Commission.

And I do not consider it to be a turf matter. I do not think that it makes sense to set up the Federal Reserve Board as the party which would make the final decisions because that would require them to establish expertise in the area.

And at risk of creating controversy, I happen to think that in our country the stock market is the primary market, and that the use of derivative is quite the right phrase with regard to the index products, that they are derivative of the existence of our stock market.

The CHAIRMAN. Well, before I recess the hearing, I did not know whether Dr. Gramm wanted to say anything to that or not, or whether you just wanted to let it go?

Dr. GRAMM. Well, you do know my views so I will not go into them in a whole lot of detail.

The CHAIRMAN. Please give your views. I would not recess the hearing without giving you a chance to respond. [Laughter.]

Dr. GRAMM. However, as you know these are futures markets, and I believe the CFTC is the agency that has the professional expertise to regulate all futures markets. The issue is not whether or not you should have oil futures be regulated by the Department of Energy. It is basically the issue that these are futures that are risk hedging instruments. Very frankly, I think that as I said before, we need certainty and stability in the markets, including regulatory certainty. I do not think that jurisdictional changes are appropriate, warranted, or wise at this point.

Mr. RUDER. I guess one other comment. You might be aware, Senator, that there is at least one exchange in which we regulate, both the agencies regulate on the floor of the same exchange, the same people. The New York Stock Exchange, for instance, has the New York futures exchange as one of its subsidiaries so we have two regulatory agencies regulating essentially the same entity. So that concept that we cannot regulate two kinds of markets really is not necessarily one which ought to drive the result.

The CHAIRMAN. With that, we will recess and allow the Senators a chance to submit questions for the record. I thank the three of you very, very much for being here. Thank you.

[Whereupon, at 11:55 a.m., the committee recessed, to reconvene at 9:42 a.m., Wednesday, April 27, 1988, in room SD-562, Dirksen Senate Office Building.]

[Material submitted for inclusion in the record follows:]

100TH CONGRESS
2D SESSION
S. _____

IN THE SENATE OF THE UNITED STATES

Mr. LEAHY introduced the following bill; which was read twice and referred to the Committee on ____________________________

A BILL

To establish an Intermarket Monitoring Council.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Intermarket Monitoring Council Act".

SEC. 2. ESTABLISHMENT.

There is established the Intermarket Monitoring Council (hereinafter referred to as the "Council") which shall be an independent agency of the United States Government. The Council shall consist of—

(1) the Chairman of the Board of Governors of the Federal Reserve System, who shall be the Chairman of the Council;

(2) the Chairman of the Securities and Exchange Commission;

(3) the Chairman of the Commodity Futures Trading Commission; and

(4) the Secretary of the Treasury.

SEC. 3. GENERAL RESPONSIBILITIES.

(a) IN GENERAL.—The Council shall coordinate market surveillance, financial surveillance, and Federal regulatory policy relating to trading in, and the operation of markets in, stocks, stock options, stock index options, stock index futures, and stock index futures options.

(b) MEETINGS.—In carrying out its functions, the Council shall meet not less than once each month to review matters within its jurisdiction and at such additional times as the Chairman may prescribe.

SEC. 4. FUNCTIONS OF THE INTERMARKET MONITORING COUNCIL.

(a) IN GENERAL.—The Council shall—

(1) exchange, review, analyze, and coordinate the collection of market and financial surveillance information, including data collected and provided by the Securities and Exchange Commission, the

Commodity Futures Trading Commission, and the Board of Governors of the Federal Reserve System, in the exercise of those agencies' separate functions relating to the markets and persons subject to their regulatory jurisdiction, and—

(A) coordinate intermarket, foreign market, and financial surveillance information gathering, and for such purpose may request the Board of Governors of the Federal Reserve System, the Securities Exchange Commission, and the Commodity Futures Trading Commission to obtain additional data in order to promote and carry out fully informed intermarket surveillance; and

(B) provide information and make recommendations to the Board of Governors of the Federal Reserve System, the Securities Exchange Commission, and the Commodity Futures Trading Commission regarding such actions as the Council deems to be appropriate;

(2) review financial requirements applicable to brokers, dealers, futures commission merchants, and other market participants, and make recommendations to the appropriate regulatory agency for improvements in the financial regulation of brokers,

dealers, futures commission merchants, and other market participants;

(3) review the consistency and adequacy of margin requirements and settlement practices in various markets, and make recommendations to the appropriate regulatory agencies or exchanges for improvements in margin requirements and settlement practices, and for appropriate margin levels for various instruments, as the Council deems appropriate; and

(4) coordinate the regulation of foreign markets with the regulation of domestic markets, take steps to promote the sharing of foreign and domestic intermarket surveillance data and financial information, and make recommendations for additional legislation or other action necessary to address international securities, options, and futures market practices.

(b) CLEARING SYSTEM STUDY.—Not later than 180 days after the date of enactment of this Act, the Council shall transmit a report to the Congress on whether a clearing system should be linked or unified in order to reduce financial risk, and if the Council recommends such action, it shall include in such report specific recommendations on how such action should be carried out, an analysis of intermarket cross margins, and recommendations for legislation necessary to carry such action.

(c) ACCESS TO INFORMATION.—Notwithstanding any other provision of law, upon written request made by the Chairman, the Securities and Exchange Commission, the Commodity Futures Trading Commission, any securities exchange, contract market, broker, dealer, futures commission merchant, or any other person shall provide the Council access to any books, records, or other information requested in the most expeditious manner possible.

(d) EMERGENCY AUTHORITY.—

(1) The Chairman of the Council is authorized to declare a market emergency and, upon such declaration, by order, to take such action with respect to any contract market or securities exchange, director, officer, member, agent or employee thereof, broker, dealer, commodity pool operator, futures commission merchant, or other person involved in the futures or securities markets, or their related exchanges, as may be appropriate to address the market emergency. Actions that may be taken under this paragraph include issuing an order altering or supplementing contract market or securities exchange rules, suspending trading, setting volume of trading or price change limits, suspending contract market or security exchange op-

erations, issuing or modifying position limits or trading halts, or altering margin requirements.

(2) The Chairman may rescind an order issued under paragraph (1) at any time. Any such order shall not be effective for a period longer than 72 hours unless at least 3 members of the Council conclude that the market emergency which was the subject of the declaration causing such order to be issued continues to exist.

(3) As used in this subsection, the term "market emergency" means a market condition or related event that threatens the integrity of the financial system or of major financial institutions and which prevents the relevant market or markets from accurately reflecting the forces of supply and demand or from performing adequately the market's economic functions and which cause, affect, or result from a foreign or domestic financial crisis.

SEC. 5. REVIEW OF EMERGENCY ACTIONS.

After the issuance of an order under section 4(d) by the Chairman, the person against whom it is issued or any other aggrieved person may obtain a review of such order by filing in the United States Court of Appeals for the District of Columbia Circuit, a written petition, within 15 days after the notice of such order is issued, requesting that the order of the Chairman be set aside or modified. A copy of such petition shall be forthwith transmitted by the clerk of the court to the Council and thereupon the Council shall file in the court the record on which the order is entered, as provided in section 2112 of title 28, United States Code. Upon the filing of the petition the court shall have jurisdiction to affirm, to set aside, or modify the order of the Chairman, and the findings of the Chairman as to the facts, if supported by substantial evidence, shall be conclusive.

SEC. 6. ADMINISTRATIVE PROVISIONS.

(a) STAFF AND TEMPORARY SERVICES.—The Council—

(1) may appoint and fix the compensation of such staff personnel as it deems necessary; and

(2) may procure temporary and intermittent services to the same extent as is authorized by section 3109 of title 5, United States Code.

(b) COMPENSATION.—A member of the Council shall serve as a member of the Council without additional compensation, but shall be entitled to reimbursement for travel, subsistence, and other necessary expenses incurred in the performance of the member's duties as a member of the Council.

(c) ASSISTANCE OF GOVERNMENT AGENCIES.—

(1) Each department, agency, and instrumentality of the executive branch of the United States Gov-

ernment, including independent agencies, is authorized and directed to furnish to the Council, upon request, such data, reports, and other information as the Council deems necessary to carry out its functions under this Act.

(2) The head of any department, agency, or instrumentality of the United States may detail such personnel and may furnish such services, with or without reimbursement, as the Council may request to assist it in carrying out its functions.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated an amount not to exceed $400,000 to carry out the provisions of this Act for each of the fiscal years 1988, 1989, and 1990.

DRAFT SUMMARY

"INTERMARKET MONITORING COUNCIL ACT"

Senator Patrick Leahy

Section 2: ESTABLISH AN INTERMARKET MONITORING COUNCIL (IMC)

The Council will consist of the Chairman of the Board of Governors of the Federal Reserve System (FRB), the Securities and Exchange Commission (SEC) and the Commodities Futures Trading Commission (CFTC) as well as the Secretary of the Treasury. The Federal Reserve Chairman would be the IMC Chairman.

Section 3: GENERAL RESPONSIBILITIES

Coordinate market surveillance and Federal regulatory policy regarding the operation of markets in stocks, stock index options, stock options, stock index futures contracts and stock index futures options.

The IMC must meet at least once each month.

Section 4: FUNCTIONS OF THE IMC

MARKET COORDINATION AND SURVEILLANCE:

The IMC would exchange, review, analyze and coordinate the collection of market and financial surveillance information. The data would be collected and submitted by the SEC, CFTC, and FRB for their respective markets or from persons subject to their direct regulatory jurisdiction.

The IMC may inform and recommend to the various regulatory agencies such actions as IMC may deem appropriate.

Review financial requirements for brokers, dealers, futures commission merchants, and other market participants and recommend to the appropriate regulatory agency any improvements regarding these requirements.

Recommend to the appropriate regulatory agency or exchanges any improvements in existing margin and settlement practices, as well as suggesting levels of margin on various instruments.

The IMC shall coordinate the regulation of foreign markets with domestic markets and take steps to promote the sharing of foreign and domestic intermarket surveillance data and financial information. The IMC may recommend legislation needed to address international securities, options and futures markets practices.

CLEARING SYSTEM STUDY:

The IMC shall, within 180 days of enactment of this Act, report to Congress on whether, and if so, how, a clearing system should be linked or unified to reduce financial risk. Such a study should include an analysis of intermarket cross margins and shall include recommendations for any legislative changes necessary to implement recommendations.

ACCESS TO INFORMATION:

The Chairman of the IMC, on written request, can require the SEC, the CFTC, or any securities exchange, contract market, broker or any other person to provide the IMC with any books, records or other information in the most expeditious manner possible.

EMERGENCY AUTHORITY:

The Chairman of the IMC may declare a "market emergency" if a market condition, or a related event, threatens the integrity of the financial system or of major financial institutions, and which prevents the relevant market from accurately reflecting the forces of supply and demand or from performing adequately the market's economic functions and which cause, affect, or result from a foreign or domestic financial crisis.

In the event of a "market emergency" the IMC Chairman may order persons involved in futures or securities markets (brokers, dealers, members, futures commission merchants, or others) to take specified actions as may be appropriate to address the market emergency. These actions may include: altering or supplementing contract market or securities exchange rules, suspending trading, setting volume of trading or price change limits, issuing or modifying position limits or trading halts, or altering margin requirements.

The Chairman also has the authority to cancel any such order, however, the emergency measures may not stay in effect for more than 72 hours unless three members of the IMC conclude that such a market emergency exists.

Section 5: COURT REVIEW OF EMERGENCY ACTIONS

Any aggrieved person may obtain review of such an order in the United States Court of Appeals for the District of Columbia upon filing a written petition within 15 days after the order is issued.

Section 6: ADMINISTRATIVE PROVISIONS

The IMC may hire staff and provide compensation as is necessary. Executive agencies may loan employees to the IMC. The four IMC members will receive reimbursements for travel, subsistence and other necessary expenses.

Section 7: AUTHORIZATION OF APPROPRIATIONS

For each of the fiscal years 1988, 1989 and 1990, $400,000 is authorized to be appropriated to carry out this Act.

OVERSIGHT HEARINGS—MATTERS RELATING TO THE OCTOBER 19 MARKET BREAK

WEDNESDAY, APRIL 27, 1988

U.S. Senate,
Committee on Agriculture, Nutrition, and Forestry,
Washington, DC.

The committee met, pursuant to notice, at 9:42 a.m., in room SD-562, Dirksen Senate Office Building, Hon. Patrick J. Leahy (chairman of the committee) presiding.

Present or submitting a statement: Senators Leahy, Heflin, Harkin, Conrad, Daschle, Lugar, McConnell, and Bond.

STATEMENT OF HON. PATRICK J. LEAHY, A U.S. SENATOR FROM VERMONT

The Chairman. Good morning. I apologize for being late. I had not done the thing I normally do and checked my schedule. And just as soon as we were down in the regular committee room, which is 20 yards from my office instead of over here in Dirksen, I did.

To speed up things, I will put into the record my full prepared statement and say only that I am rather pleased that the President has acted in creating a coordinating group, that the coordinating group follows much of what I have suggested in my bill to create an Intermarket Coordinating Council, and that the coordinating group seems to be acting to implement many of the recommendations made by the Brady Commission.

[The prepared statements of Senators Leahy, Heflin, McConnell, and Karnes follow:]

Opening Statement of
The Honorable Patrick Leahy, Chairman
Committee on Agriculture, Nutrition, and Forestry
April 27, 1988

Today, the Committee on Agriculture, Nutrition, and Forestry continues its oversight hearings on the October 1987 stock market crash. Last March, we heard testimony from the Chairpersons of the two principal federal commissions responsible for overseeing equity-related trading in this country: Wendy Gramm of the Commodity Futures Trading Commission and David Ruder of the Securities and Exchange Commission. Today, we hear from four other important witnesses. The General Accounting Office will discuss its analysis of the widely divergent conclusions reached by the SEC and CFTC in their respective reports on the October crash. Then, we will hear from some of the self-regulators: Jack Sandner, Chairman of the Chicago Mercantile Exchange; Karsten Mahlmann, Chairman of the Chicago Board of Trade; and Richard Grasso, President of the New York Stock Exchange.

In late February, I circulated a draft of a bill to create an Intermarket Coordinating Council made up of the heads of the four agencies later named in the President's Executive Order creating a similar structure. That group is now chaired by Treasury Under Secretary Gould. When I circulated that draft bill to the White House, the Federal regulators and the exchanges, I made clear that I wasn't certain that legislation was needed, but I was certain that the regulators and the exchanges needed a swift kick in the pants to get moving on resolving market structure problems, hopefully, by consensus.

I must say that I'm rather pleased that the President did act in creating the cordinating group and that the coordinating group seems to be acting to implement many of the recommendations made by the Brady Commission. Unlike some of my colleagues, I do not believe that the Congress is always the fount of all wisdom and originator of all solutions to the many problems facing this country. So I, for one, am willing to give some time to the Gould group to work out market structure problems so long as they continue to meet cooperatively and make progress toward resolution of these problems. But I'll say today what I've told the regulators individually, if the spirit of cooperation breaks down, if they fail to make progress, then I'm prepared to force action with legislation.

Congress and the American public want to see meaningful steps taken to address the weaknesses in our trading systems uncovered by the October crash. Congress may eventually feel compelled to intervene legislatively in this process. The present approach, however, is to place primary responsibility on the experts -- the agencies and the exchanges to achieve consensus solutions.

Since our March hearing, much consultation has taken place. Some concrete steps have already been taken by the exchanges and the agencies. Have these been sufficient? Are the ongoing talks among regulators progressing on the right track? Can the American public feel any more assured today about the health of our financial markets than we could last February or last October?

Those are some of the questions we will consider today, and in future hearings, as this Committee continues its oversight of these important markets.

Howell Heflin

OPENING STATEMENT OF SENATOR HOWELL HEFLIN

HEARING ON MATTERS RELATING TO THE OCTOBER 19 MARKET BREAK

Wednesday, April 27, 1988

Mr. Chairman,

I would first like to commend your efforts in holding this hearing on the matters relating to the October 19, 1987, market break. I would also like to welcome our panelists to the hearing. I look forward to their testimony.

I believe our committee must review every area dealing with the futures markets, and their actions before and after the October break. Most importantly, we must examine measures to ensure that trader confidence remains in the market place, as well as the confidence of the investor in all futures and stock markets. I also believe it is very important that we evaluate all global markets and their relationship to the U.S. marketplace.

It is also important to evaluate the current regulations and their impact on the marketplace. I believe the Agriculture Committee must act to review the workings of the marketplace for the evaluation of the futures markets which fall under the Agriculture Committee's jurisdiction.

HEARING TO FURTHER DISCUSS THE OCTOBER 19 CRASH

STATEMENT OF SENATOR MITCH McCONNELL

APRIL 27, 1988

Mr. Chairman:

I would like to begin by thanking the Distinguished Senator from Vermont for conducting this hearing. The issue of what happened on October 19th on our nation's financial and commodity futures and options markets, and what is to be done in response, has serious implications for the agriculture community, and I commend his leadership in focussing this Committee's attention on this most important issue.

In my statement before the last hearing, I expressed my hesitancy about drastic action to control the markets. In light of the studies which have been released and discussed at length, discussions to which I have listened, as well as personal conversations I have had with industry representatives, I find no reason to change this opinion. The various exchanges have taken many voluntary steps to respond problems identified on October 19th, and today's hearing will be helpful to explore these efforts.

Though the CFTC oversees a broad range of financial instruments, my personal interest in this issue leans more toward the farmer's. In my mind, the main focus of our efforts should be to ensure that farmers continue to have ample opportunities to manage their risk, and are assured of a stable and reliable market. Efforts must be made, on one hand, to assure them of the safety of participating in futures and options markets. On the other hand, we must not do anything which would impair our markets' relative competitiveness in the world. This can be a rather fine line upon which to balance, and I will welcome the thoughts of our witnesses on these matters.

I do want to take this chance to commend the various exchanges for their self-initiated efforts to respond to the problems exposed on October 19th, which I mentioned earlier. I think some productive efforts have begun since the crash, not the least among these being increased communication between the various exchanges. This highlights a heightened awareness of the interrelationships between the commodity futures and options markets and the various stock exchanges, and the linkages between world markets.

Again, I want to thank the Chairman of the Committee for continuing this committee's inquiry into the commodity futures and options markets in light of October 19. I look forward to the testimony of our distinguished guests.

STATEMENT OF SENATOR DAVID KARNES

HEARINGS BY THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY ON THE OCTOBER 1987 "MARKET BREAK"

APRIL 27, 1988

Mr. Chairman, today the Senate Agriculture Committee will begin its hearings on the regulation of the commodities futures markets including the circumstances surrounding the break in the stock market last October. I commend you and Senator Lugar, the ranking Republican member of this Committee, for calling these important hearings. I would like to thank our witnesses for preparing their testimony and coming before the Committee today. I look forward to their remarks and the opportunity for the Committee to explore their views with questions.

This is an important subject to all of the members of the Committee in view of our jurisdiction over the Commodity Futures Trading Commission, the agency with responsibility to regulate and supervise the futures markets. Much of the public thinks of the events last year as the break in the stock market, which does not factor in the role and impact of the futures markets on those events. As we know, the futures and the stock markets are inextricably linked and must be viewed as complimentary pieces of the larger financial markets.

I share a rather unique advantage with our colleague Senator Bond. We are the only members of this Committee who also sit as members of the Senate Banking Committee. There have been a number of instances where we have seen considerable commonality in the issues before the two Committees. The subject of today's hearings is a prime example of this.

Earlier this year, we in the Senate Banking Committee held extensive hearings on the market break. There was testimony from former Senator Nick Brady, Chairman of President Reagan's Task Force on the subject, as well as representatives of the Chicago Mercantile Exchange, the Chicago Board of Trade, the New York Stock Exchange, the American Stock Exchange, the Commodity Futures Exchange Commission and the Securities Exchange Commission.

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It was a great opportunity to get a look at the facts behind what everyone recognizes was the worst two-day decline in the stock and futures market. The hearings focused on the factors which triggered the October market break. I should mention them briefly ---

1. Growing uncertainty over international monetary policy.

2. A regressive tax measure related to corporate acquisitions.

3. Twin deficits - budget and trade.

4. Record stock price levels - increasing bond yields.

Most recently, Senator Brady indicated that heavy selling of U.S. Treasury securities in the days before the October break played a critical role in pushing up interest rates, which in turn place tremendous pressure on the equity markets as debt returns grew to irresistible levels.

There have been five separate studies on the October break -- the Brady Commission, the NYSE, the CBOE, the SEC, and the General Accounting Office have each produced in-depth reports. Each examines the causes and implications, and suggest possible corrective responses to the events of those days in October.

Given the hearings and reports that have preceeded our hearings today, I believe that some impressions can be drawn.

o "CAUTION" has become the watch-word. The stock and futures markets have functioned well over many years. Even on October 19, the markets came through it all in remarkably good shape.

o The concept of deregulation has a firm footing. At least in the Senate Banking Committee, the sentiment is toward minimum interference with the functioning of the markets.

o Margin requirements should be coordinated among the stock and futures markets, but the requirements should not be identical. Margins should be based on the risks involved and tailored to be flexible as circumstances warrant.

o Coordination among market exchanges and regulators is necessary. There is great reluctance to create some "super-regulator" to accomplish this. There is a lack of enthusiasm for allowing the SEC to take-over and preempt regulation of financial and stock futures.

o Congress should give the industries a reasonable time to work out solutions. In one instance where the NYSE has suspended program trading under specified condition, the SEC has followed through to move toward mandating that practice by regulation.

Mr. Chairman, I hope that in holding this hearing and deliberating on what we lean, we will remember what can best be described as a "barnyard fable" told by Senator Phil Gramm during the course of the Senate Banking Committee hearings on this subject. In it he analogised our stock and futures markets to the goose that laid golden eggs for many years. The fable tells of how, one day, the goose stopped laying those golden eggs; the real reason why the goose stopped; what the best way was to get the goose around to laying eggs again; and, finally, the constant danger that the goose would be attracted to fly away someday and migrate to a foreign land in search of a better nest in which to lay those golden eggs.

Mr. Chairman, because the fable is so profound in its understanding of the subject which we will discuss today, I have brought along a copy of an article by Shirley Hobbs Scheibla from the February 15, 1988 edition of Barron's reporting on Senator Gramm's statement given at the Senate Banking Committee hearing on February 2, 1988. I ask that it be entered in the record with my remarks. I hope each of my colleagues who have not seen Senator Gramm's statement will give it their serious attention.

Mr. Chairman, I hope that we can benefit from what we have learned to date about the events that took place in our stock and futures markets last October. Our stock and futures markets have worked well for many years; even over those few tumultuous days last October. Congress should proceed cautiously. We should keep our faith in the markets. One thing is clear - the Government must not substitute its judgement for that of the stock and futures markets. The stock and futures industries should get the first crack at fashioning solutions to the underlying causes of that market turmoil. Finally, there must be a serious and constant concern over loosing leadership in financial markets to foreign competition.

I trust that this hearing will further our understanding of the events of last October. I also trust that it will affirm our faith in the nation's financial markets.

Thank you Mr. Chairman.

"We Are in the Farmer Business"

WASHINGTON – Recently, reporters were nearly overwhelmed by weighty reports and Senate testimony on the market crash. But what they were discussing mostly among themselves was Sen. Phil Gramm's tale of the goose that laid the golden egg, told to the Senate Banking Committee.

Served up below is what the Texas Republican said, minus his Texas drawl and homespun and folksy manner.

—Shirley Hobbs Scheibla

IT seems to me that our situation is sort of like an old farmer that's got a goose, and this goose had been in the wonderful habit of laying golden eggs. And so the farmer comes; he burns down the goose house;, he lets his dog loose to chase the goose around the yard; he quits feeding the goose; pumps out the pond, and one day the goose doesn't lay a golden egg. So he calls up the veterinarian and says, "You need to get out here. Something's wrong with this damn goose. You may need to operate on this goose."

Now, Mr. Chairman, there may be something wrong with the goose. But when you're fighting the coop burning down and the pond being pumped out and the dog chasing you, and you're not getting fed regularly, and you survive all that, and you just miss one day of laying a golden egg, it's a pretty damn good goose.

I'd suggest that we begin by rebuilding the coop, pumping water back in the pond and start feeding the goose again and either shoot the old dog or leash him up, and then we find out where the goose broke down. Maybe he wasn't running quite fast enough to stay ahead of the dog, and so we may want to check out those legs and the lung capacity. We might want to see if there's some problem in the laying process.

But I'm struck by the fact that the [Brady] report concludes—you number your pages funny—but concludes in the conclusion that, in essence, we had the Great Depression not because the stock market collapsed, but because of the monetary policy of the Federal Reserve Bank, because of a massive tax increase and because of the Smoot-Hawley tariff. And I have to be struck by the fact that all three of these factors were present in October. The basic monetary base had grown at less than half the rate the year before. We were facing all kinds of proposals for tax increases, including a punitive tax on the transfer of ownership in the equity market. And everybody is aware that protectionism is all the rage here in Washington, imperiling the whole economic recovery of the western world in the postwar period.

So I, for one, am willing to take a very close look at this goose; open up his mouth; look down his throat; check out his craw; I should say her. And if something needs to be done to the goose, I want to do it. But I would like to remind people that while we are in the veterinarian business with regard to this goose as members of this committee, we are in the farmer business as it relates to this goose as members of the Senate. The problem really is more a problem of the coop, and the pond, and the feeding and the dog. We ought to be looking at those things as well.

Final point: This is a wild goose and can fly. And I submit that currently—and I thank the Lord for it—we have the best environment on earth for the care and feeding of these geese that lay the golden eggs in the American equity market. People come from all over the world to invest here. It is not beyond my imagination to imagine that we could do some things that would be so counterproductive and so stupid as to induce this goose to fly off to some other land that would promise no dogs, better food, a better cage, plenty of straw.

Since a transaction is recorded in Tokyo 35 seconds after it occurs in New York, it could be reversed. I think we've got to keep all these things in mind as we look at how we can help this goose do a better job but also look at the environment. ■

BARRON'S FEBRUARY 15, 1988

The CHAIRMAN. Senator Daschle, did you have an opening statement you would like to make?

Senator DASCHLE. I do not. I share your feeling about the coordinating group and look forward to the information that will come out of that group in the future. And I look forward to hearing our witnesses.

The CHAIRMAN. Thank you. Well, we're fortunate in having the Comptroller General of the United States.

Mr. Bowsher, I am glad to have you, sir. Since you have a group with you, you may want to introduce them. Then we will turn to you for your statement.

STATEMENT OF CHARLES A. BOWSHER, COMPTROLLER GENERAL OF THE UNITED STATES, GENERAL ACCOUNTING OFFICE, WASHINGTON, DC, ACCOMPANIED BY RICHARD L. FOGEL, ASSISTANT COMPTROLLER GENERAL; CRAIG SIMMONS, ASSOCIATE DIRECTOR; AND HOWARD G. RHILE JR., ASSOCIATE DIRECTOR

Mr. BOWSHER. Thank you very much, Mr. Chairman, and Senator Daschle.

My team with me today is Dick Fogel on my left. On my right is Craig Simmons and Howard Rhile. We have a full prepared statement, but I would like to read a short statement.

The CHAIRMAN. Go ahead, sir.

Mr. BOWSHER. We are pleased to be here today to report on the progress being made by the Federal and self-regulatory organizations in response to the market crash last October. As you requested, we will address specifically:

The progress made in developing a coordinated intermarket contingency plan and other changes to improve coordination and options.

Two, the progress made in enhancing the capacity of the New York Stock Exchange's order processing systems and an analysis of the exchange's capability to identify program trading.

And, three, the differences in methodologies used to evaluate the effects of program trading by the various study groups.

PROGRESS MADE SINCE THE CRASH

First, let me talk about the progress made since the crash.

Controversy persists about the causes of the October crash as well as the exact nature of the problems and solutions. But one thing all the groups who have studied the crash agree on is that the futures and equity markets are linked. Thus, any changes that are made must recognize this reality.

Even though there is agreement that the equity and futures markets are linked, controversy persists over the uses, benefits and risks of derivative stock index products. The Board of Governors of the Federal Reserve System, along with the SEC and the CFTC, found in a 1984 "Study of the Effects on the Economy of Trading in Futures and Options" that derivative products serve a useful economic purpose. However, the study cautioned that the potential existed for disruptive trading in the index product markets that could lead to speculative bubbles that could burst with destabilizing results. In light of the events of last October, I believe the Federal Reserve should revisit its findings. We would be glad to review the results of the Federal Reserve's new efforts.

In recent months, the Congress has urged that the executive branch and the exchanges develop the leadership to resolve the controversies that exist over solutions to the problems identified in studies of the market crash. But the Federal and self-regulators have sometimes worked at cross purposes where disagreements existed. Despite the linkages that exist between these markets, some changes are being made unilaterally in the futures and equity markets that could disrupt rather than support their workings.

I, too, am somewhat encouraged by the recent formation of the President's Working Group on Financial Markets. This group offers the potential to resolve intermarket regulatory disagreements. It has held a number of meetings, and I understand it has begun to tackle some of the more difficult issues associated with intermarket regulation. I look forward to their mid-May report.

At that time, we will learn if the working group has been able to come up with a consensus solution to the problems that surfaced on October 19. Because that solution has not yet emerged, the Congress should continue to keep pressure on the various parties through continued oversight so that progress toward a truly coordinated solution remains on track. We will review the findings and proposals of the President's Working Group and are prepared to continue assisting the Congress in its oversight of the market regulation.

A number of changes have been initiated since the crash. Many of the changes that have occurred are designed to improve communications and data sharing, enhance financial and market surveillance, improve clearing and settlement procedures, enhance capital adequacy, improve marketmaking systems, and assure credit availability.

However, other important changes with significant intermarket implications have occurred despite considerable disagreement over the wisdom of these changes. These changes may be counterproductive, and have the distinct potential to destabilize markets. In these cases, the Federal and self-regulators have not been able to resolve the conflicts.

One example of this problem is found in the debate over daily price limits. The futures markets have adopted daily price limits on their index products to limit price swings. The stock markets have not adopted price limits as a means of controlling large single-day price changes, though we understand that there has been discussion of the advisability and feasibility of such a change by the President's Working Group and the exchanges. There is considerable controversy over the concept of price limits or other circuit breakers. CFTC officials said that although price limits have disadvantages, they can prevent markets from overreacting during periods of uncertainty. SEC officials believe that price limits in stock markets can deprive investors of the ability to sell when they need to and may also induce panic.

This issue needs to be resolved one way or the other quickly. The use of price limits on futures index products and their absence in the equity markets create the distinct possibility of an adverse transfer of buying or selling pressure from the futures to the equity markets the next time there is a major market price adjustment. This type of uncoordinated change, if allowed to persist, threatens to disrupt rather than stabilize markets.

Another area of controversy involves the New York Stock Exchange's recently approved restriction on use of the Designated Order Turnaround system for index arbitrage when the Dow Jones Industrial Average moves 50 points, up or down, in a day. The New York Stock Exchange believes that this change will dampen volatility. The Chicago Board of Trade and the Chicago Mercantile Exchange do not agree, and the CFTC has indicated that the change could substantially disrupt the linkage between the stock and futures markets. This, or any other change to market operations that offers even the possibility of destabilizing markets must be evaluated carefully, with disagreements resolved as quickly as possible.

The lack of an intermarket decisionmaking structure to resolve these problems is also inhibiting the development of a unified intermarket contingency plan. Some useful changes to improve communications, such as an intermarket hotline, and the crisis management telephone book, should prove useful in alleviating some of the confusion and uncertainty which occurred last October.

However, a very important part of a good contingency plan—namely, a clear delineation of intermarket emergency decisionmaking duties and responsibilities—is still not in place. Decisions about what constitutes a market emergency, the types of actions to be taken, and who will make the decisions are still not clear. As long as these issues are not resolved, progress toward completing a good contingency plan will be slowed. We believe that the President's Working Group should produce such a plan by its mid-May reporting date.

NEW YORK STOCK EXCHANGE COMPUTER ENHANCEMENTS

Now, let me talk, if I can, about the New York Stock Exchange computer enhancements.

Let me now highlight the results of our review of the New York Stock Exchange's computer systems. We are issuing today two new reports which address this subject.

The New York Stock Exchange has made a number of upgrades to its order processing systems and changes to the way its plans its computer capacity. These changes are designed to correct the problems we identified in our January report. These changes include: installing new equipment to handle odd-lot orders, installing additional automated specialist books to reduce its reliance on slow card printers, adding more specialist trading posts, developing the capacity to handle a 600 million share day by May, and a 1 billion share day by 1990, or the end of 1989, and establishing system performance goals.

The exchange officials told us that it plans a full scale test of the order processing systems in a 600 million share day environment on April 30, 1988. We have been invited to observe it. It is particularly important that subsequent tests are designed to demonstrate that not only the exchange's systems, but also that systems linking it to member firms and other exchanges can process anticipated order volumes.

In response to our recommendation, the exchange plans to have an independent assessment of its computer operations. On the other hand, SEC officials told us they have no current plans to acquire additional technical resources to independently assess the exchange's trading systems. However, they said they agreed with the needs for an independent assessment of the trading systems and with the exchange's plans to contract for such an assessment. They said they plan to review the results of the exchange's independent assessment, and they believe this review fulfills SEC's regulatory responsibilities. We continue to believe that the SEC need its own capability to evaluate computer systems.

On a related matter, you inquired if the New York Stock Exchange's computer systems can identify basket trades and distinguish between the various types of basket program trading strategies. The exchange's computer systems have the capability to identify most basket trades, but cannot differentiate among basket trading strategies. The exchange intends to develop this capability. Now that the SEC has approved the 50 point cut-off rule for index arbitrage, we believe it is important that the exchange develop this capacity quickly to effectively enforce the new rule.

CRASH STUDY METHODOLOGICAL DIFFERENCES

Let me turn now to our assessment of the methodological differences among the studies of the effects of program trading on the price volatility of October 19 and 20.

The Brady Commission set out to describe the events of October 19 and 20. On the other hand, the SEC and the CFTC set out to test for the existence of specific types of program trading effects. For this reason, I would like to explain the differences between the CFTC and SEC studies. Each study group used the same data—that collected from a survey of 16 large firms known to be active futures related program traders in the weeks preceding the crash. As a result, the estimates of total program trading on the 19th and 20th were roughly equivalent. This data on program trading included both straight program selling in the equity markets as well as index arbitrage and portfolio insurance.

The SEC and the CFTC studies of program trading had different objectives. A key CFTC objective was to substantiate or refute the so-called "cascade scenario." This might happen when hedging in futures markets sets off a chain reaction of index arbitrage selling in the equity markets which is then followed by endless rounds of subsequent futures hedging and index arbitrage equity sales, leading to a downward spiral of equity prices. The SEC had a number of objectives—the most important being to identify whether significant program trading activity in equity markets was associated with periods of significant price changes during the market crash period. It is important to emphasize that because of the different study objectives, the conclusions reached by the SEC and CFTC do not necessarily contradict one another.

Both the CFTC and the SEC matched the trading activity with price changes occurring in the stock market over particular time intervals. But because of the different questions that the CFTC and the SEC were asking of the data, the measure of program trading used for comparison with the price change data differed considerably.

The CFTC used only program trading data with a direct futures component—namely, index arbitrage and index substitution. The SEC used all program trading data, including straight stock selling. In effect, the CFTC looked for the effects of 37 million shares out of a total of 89 million shares that the survey of 16 firms had identified as program trades on October 19.

The CFTC contended that the 52 million other shares did not contain a futures component and, therefore, were not relevant for testing whether the cascade theory was operative on October 19. On the other hand, the SEC officials included the 52 million of equity share sales because they believed the sales were futures related. Their interviews with market participants revealed that many shares were sold directly into equity markets instead of being hedged with futures because futures became prohibitively expensive.

Other differences in study methodologies and the differences of opinion over them are described in my longer statement.

CONCLUSION

This brings me to the conclusion.

Reasonable people may disagree about which of the measurement methodologies and interpretations of data are most appropriate. And because of the acknowledged limitations of the studies of program trading, we will probably never know its precise effects on price behavior of markets during October 19 and 20.

From the standpoint of seeking solutions to better enable market participants and investors to cope with a major price swing, I am not sure we need to know the precise effects of the new market demands on price volatility. The buying and selling of large groups of stock baskets is a reality of today's market. Program trading of these baskets is a technique used by institutional portfolio managers who control huge positions. When all these traders want to move in the same direction, either buy or sell, they are bound to put stress on the markets. The key policy question that must be answered is: what is the best way to manage this stress—try to control it when it becomes a problem, or adjust market structures to better deal with it on a day-to-day basis.

Progress has been made in some areas to enable the individual markets to better cope with large trading days. However, other changes, such as price limits on stock index futures and the cut off of the New York Stock Exchange's DOT system for index arbitrage, have not been agreed upon by all of the Federal and self-regulators. Because these changes have not been coordinated across markets, they have potentially adverse implications for intermarket stability. These uncoordinated changes greatly concern us. Differences of opinion about these matters among the exchanges and Federal regulators must be resolved quickly, and hopefully by the President's Working Group. If this does not occur, then I think the disagreements might have to be dealt with through congressional action.

Thank you, Mr. Chairman.

[The summary statement, prepared statement, attachment I, and attachment II of Charles A. Bowsher follow:]

United States General Accounting Office

GAO Testimony

For Release
on Delivery
Expected at
9:30 EDT
Wednesday
April 27, 1988

Developments Since the Market Crash of October 1987

Summary Statement of
Charles A. Bowsher
Comptroller General
of the United States

Before the
Senate Committee on Agriculture,
Nutrition and Forestry
United States Senate

Mr. Chairman and Members of the Committee:

We are pleased to be here to report on the progress being made by Federal and self regulatory organizations in response to the market crash last October. As you requested, we will address specifically:

-- The progress made in developing a coordinated intermarket contingency plan and other changes to improve market coordination and operations.

-- The progress made in enhancing the capacity of the New York Stock Exchange's order processing systems and an analysis of the Exchange's capability to identify program trading.

-- The differences in methodologies used to evaluate the effects of program trading by the various study groups.

PROGRESS MADE SINCE THE CRASH

Controversy persists about the causes of the October crash as well as the exact nature of the problems and solutions. But one thing all the groups who have studied the crash agree on is that the futures and equity markets are linked. Thus, any changes that are made must recognize this reality.

Even though there is agreement that the equity and futures markets are linked, controversy persists over the uses, benefits and risks of derivative stock index products. The Board of Governors of the Federal Reserve System, along with the SEC and CFTC, found in a 1984 Study of the Effects on the Economy of Trading in Futures and Options that derivative products serve a useful economic purpose. However, the study cautioned that the potential existed for disruptive trading in the index product markets that could lead to speculative bubbles that could burst with destablizing results. In light of the events of last October, I believe the Federal Reserve should revisit its findings. We would be glad to review the results of the Federal Reserve's new efforts.

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Other differences in study methodologies and the differences of opinion over them are described in my longer statement.

CONCLUSION

Reasonable people may disagree about which of the measurement methodologies and interpretations of data are most appropriate. And because of the acknowledged limitations of the studies of program trading, we will probably never know its precise effects on price behavior of markets during October 19th and 20th.

From the standpoint of seeking solutions to better enable market participants and investors to cope with a major price swing, I am not sure we need to know the precise effects of the new market demands on price volatility. The buying and selling of large groups of stock baskets is a reality of today's markets. Program trading of these baskets is a technique used by institutional portfolio managers who control huge positions. When all these traders want to move in the same direction, either buy or sell, they are bound to put stress on the markets. The key policy question that must be answered is: what is the best way to manage this stress--try to control it when it becomes a problem or adjust market structures to better deal with it day-to-day.

Progress has been made in some areas to enable the individual markets to better cope with large trading days. However, other changes, such as price limits on stock index futures and the cut off of the NYSE's DOT system for index arbitrage, have not been agreed upon by all of the federal and self regulators. Because these changes have not been coordinated across markets, they have potentially adverse implications for intermarket stability. These uncoordinated changes greatly concern us. Differences of opinion about these matters among the exchanges and federal regulators must be resolved quickly by the President's Working Group. If this does not occur, the disagreements should be dealt with through Congressional action.

United States General Accounting Office

GAO Testimony

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Developments Since the Market Crash of October 1987

Statement of
Charles A. Bowsher
Comptroller General
of the United States

Before the
Senate Committee on Agriculture,
Nutrition and Forestry
United States Senate

Mr. Chairman and Members of the Committee:

We are pleased to be here today to report on the progress being made by federal and self-regulatory organizations in response to the market crash last October and the differences in methodologies used by various groups to evaluate the effects of program trading on the stock price declines. Our assessment today covers the progress made since the crash, and we are continuing to follow these developments. As you requested, we will address specifically:

-- the progress made in developing a coordinated intermarket contingency plan and other changes to improve market coordination and operations.

-- the progress made in enhancing the capacity of the New York Stock Exchange's (NYSE's) order processing systems and an analysis of the Exchange's capability to identify program trading.

-- the differences in methodologies used to evaluate the effects of program trading by the Presidential Task Force on Market Mechanisms (Brady Commission), the Commodity Futures Trading Commission (CFTC), and the Securities and Exchange Commission (SEC).

Controversy persists about the problems which caused the October crash and how they might be addressed. The authors of most major studies agree that the stock, options, and futures markets' trading systems should be improved with respect to data sharing, contingency planning, coordination, and operating capacity. The various federal and self-regulatory bodies have made some progress. However, disagreement remains on some very important points--the need to increase margins on futures contracts and the concept of "circuit breakers", which would automatically halt certain types of trading if market prices changed more than a set amount in any trading day. Not surprisingly, less progress has been made in tackling the tougher questions, and as yet no mechanism exists to resolve intermarket disagreements.

I wish to emphasize that there is agreement among all of the groups who have studied the crash that the futures and equity markets are linked. In my view, any changes that are made must recognize this reality.

Even though there is agreement that the equity and futures markets are linked, controversy persists over the uses, benefits and risks of derivative stock index products. The Board of Governors of the Federal Reserve System along with the SEC and CFTC found in a 1984 Study of the Effects on the Economy of Trading in Futures and Options that derivative products serve a useful economic purpose. However, the study cautioned that the potential existed for disruptive trading in the index product markets that could lead to speculative bubbles that could burst with destablizing results. In light of the events of last October, I believe the Federal Reserve should revisit its findings. We would be glad to review the results of the Federal Reserve's new efforts.

In recent months, the Congress has urged that the executive branch and the exchanges develop the leadership to resolve the controversies over the solution to the problems identified by the various groups who have studied the market crash. But the federal and self regulators have sometimes worked at cross purposes where disagreements existed. Despite the linkages that exist between these markets, some changes are being made unilaterally in the futures and equity markets that could disrupt rather than support their workings. I am somewhat encouraged by the recent formation of the President's Working Group on Financial Markets. This group offers the potential to resolve intermarket regulatory disagreements. It has held a number of meetings and I understand that it has begun to tackle some of the more difficult issues associated with intermarket regulation. I look forward to their mid-May report. At that time we will learn if the working group has been able to come up with a consensus solution to the problems that surfaced on October 19. Because that solution has not yet emerged, Congress should continue to keep pressure on the various parties through continued oversight so that progress toward a truly coordinated solution remains on track. We will review the findings and proposals of the President's Working Group and are prepared to continue assisting the Congress in its oversight of market regulation.

PROGRESS MADE SINCE THE CRASH

Federal and self regulators are working to improve the stability, operation, and capacity of the stock, options, and futures markets. They told us they meet frequently to discuss what they are doing. They are trying to develop an intermarket contingency plan. The NYSE is making changes to enhance its computer systems. These changes respond to the recommendations of our preliminary report on the market crash. They are also making many other changes to improve communication and data sharing, enhance financial and market surveillance, adjust margins, improve clearing and settlement procedures, enhance capital adequacy, improve market making systems, and better assure credit availability. (See Attachment II.) Most of these changes have not as yet been fully implemented.

DISAGREEMENTS PERSIST ON IMPORTANT MARKET ISSUES

However, some changes are being implemented unilaterally by each of the markets despite considerable disagreement over the wisdom of these changes. These changes involve restrictions on index arbitrage, daily price limits in the futures markets, and margin requirements.

Restriction on Index Arbitrage

Index arbitrage involves the simultaneous buying and selling of stocks and stock index futures. It is done to profit from differences in the market value of one compared to the other. The New York Stock Exchange proposed to forbid its members to do index arbitrage through its high-speed, automated Designated Order Turnaround (DOT) system, whenever the Dow Jones Industrial Average has moved 50 points, up or down, in a single trading day. The NYSE reported that the proposal is intended to curb intraday volatility and enhance investor confidence in the integrity, fairness, orderliness, and efficiency of the market during periods of significant volatility. The curb is based on the NYSE view that index arbitrage may exacerbate market volatility. This restriction on the use of the DOT system does not prohibit manual execution of index arbitrage strategies.

The SEC approved this rule change for a 6-month trial on April 19, 1988. NYSE officials told us that before this date its members were complying voluntarily. On Wednesday, April 6, and again on Thursday, April 14, when the Dow moved more than 50 points, the NYSE requested its members to refrain from entering index arbitrage orders through the DOT system for the remainder of the day. NYSE officials told us some members continued their index arbitrage strategies through manual execution of trades on the floor of the exchange.

The Chicago Board of Trade (CBT), where futures contracts on the Major Market Index are traded, indicated in its comments to the SEC that the NYSE should take action to restrict undue volatility, but disagreed that index arbitrage contributes to it. CBT stated that neither the NYSE nor SEC have provided the evidence needed to associate index arbitrage with increased volatility and stated that NYSE's role may exacerbate volatility and disconnect the markets at a critical time. The Chicago Mercantile Exchange (CME), where futures and options on futures contracts on the Standard and Poor's (S&P) 500 index are traded, stated that the unilateral NYSE proposal should not be approved unless and until it can be demonstrated that the proposal will further the goal of coordinated intermarket circuit breakers.

CFTC comments on the proposed rule change stated that the rule could substantially diminish the linkage between the stock and derivative index markets. The comments also stated that alternative longer-term solutions to questions of intermarket coordination need further exploration both among securities and futures exchanges and in other areas of the federal sector.

Daily Price Limits on Index Futures Products

The futures markets adopted daily price limits on their stock index futures products shortly after the crash. This meant that prices could not exceed those limits during any single trading day. The limits at CBT and CME were originally set at levels roughly equivalent to a change of over 200 points in the Dow Jones Industrial Average. Subsequently, CBT and CME reduced the limits. Currently, the limits are roughly equivalent to a 100 and 120 point change respectively in the Dow. At CME, the limits get wider as the value of its index futures products increases.

The stock markets have not adopted price limits as a means of controlling large single-day price changes. Recently, we understand that there has been discussion of the advisability and feasibility of such a change relating to very large movements in the Dow.

CFTC officials said that although price limits have disadvantages, they can prevent the markets from overreacting during periods of uncertainty. On the other hand, SEC officials said that price limits on stocks can deprive investors of the ability to liquidate positions when they need to do so and may thus induce panic and accelerate trading as the limit is approached. These differences of opinion need to be resolved. The use of price limits on futures index products and their absence in the stock markets create the distinct possibility of a transfer of buying or selling from the futures markets to the equities markets. Such a shift could create tremendous capacity and liquidity pressures and increase market instability, especially if there is a major market revaluation such as that which occurred on October 19, 1987.

Margin Requirements

Another area that is cause for concern involves margins on stock index futures contracts. Though the futures markets have recently increased margin requirements on some of their index related products, these requirements are still at a lower percentage level than those involved in the retail purchase of securities. Considerable disagreement remains over the appropriate level of margins on stock index futures contracts.

SEC officials have stated that stock index futures margins should be raised, while CFTC has reported that there is no justification for an increase. SEC has reported that the comparatively low margins on futures products permit investors to take undesirably risky positions, which have the potential to add to the downward fall in a declining market. SEC officials said that increases in futures margin levels are warranted until the impact of margin levels across both markets can be determined.

CFTC officials counter that when the specific mechanics of the futures and securities systems are compared, especially considering the futures industry's requirement of daily contract settlements, the futures margining system is more rigorous during periods of market volatility than the credit system that applies to securities transactions. CME officials have expressed views similar to those of CFTC.

CONTINGENCY PLANNING NEEDS A DECISION MAKING COMPONENT

The lack of an intermarket decision making structure as evidenced by these unresolved disagreements is also inhibiting the development of a unified intermarket contingency plan. The regulatory organizations have made progress in developing such a plan, but key decision-making components are still missing.

The federal and self-regulatory organizations are approaching contingency planning by enhancing information sharing and communications systems that will improve day-to-day operations and be available for use in any future market emergencies that occur. The SEC and CFTC have prepared and distributed a crisis management telephone book containing phone numbers of officials at SEC, CFTC, and the self regulators, as well as officials of certain foreign government agencies. Self regulators are also developing a hotline which will give them immediate conference call capability, enabling them to share information pertinent to all exchanges simultaneously. An interim system has already been tested and the final system is expected to be implemented in about 3 months. The NYSE may establish an administrative unit at a particular place off the trading floor that, as part of the hotline system, would be a focal point for questions from other exchanges about what was happening at the NYSE during market emergencies.

However, a very important part of a good contingency plan--namely, a clear delineation of intermarket emergency decision-making duties and responsibilities--is still not in place. Decisions about what constitutes a market emergency, the types of actions to be taken, and who will make the decisions are still not clear. As long as these issues are not resolved, progress toward completing a good contingency plan will be slowed. We believe the President's Working Group should produce such a plan by its mid-May reporting date.

IMPROVEMENTS IN NYSE'S COMPUTER SYSTEMS AND IDENTIFICATION OF PROGRAM TRADING

I would now like to discuss two areas of concern at the NYSE. I am pleased to say that the NYSE has made some progress in correcting the problems with its computerized order processing systems as described in our January 1988 report. We have also, in response to your request, obtained some information on the capability of the NYSE's and its member firms' computer systems to identify program trading and to distinguish between the different types of program trading strategies. Details on the results of our work are contained in two reports which we are issuing today.

Capacity Enhancements

The New York Stock Exchange has made a number of upgrades to its order processing systems and changes to the way it plans its computer capacity. These changes are designed to correct the problems we identified in our January report. These changes include: installing new equipment to handle odd-lot orders, installing additional automated specialist books to reduce its reliance on slow card printers, adding more specialist trading posts, developing the capacity to handle a 600-million share day by May and a 1-billion share day by 1990, and establishing system performance goals.

NYSE officials told us that NYSE plans to conduct a full scale test of the capability of its order processing systems in a 600-million share trading environment similar to that encountered in October 1987. We have been invited to observe the test. In our view, testing of the systems should include measures to successfully demonstrate that the NYSE's trading systems are capable of overcoming the processing problems that were described in our January report. A great deal will depend on the success of tests such as those scheduled on April 30, to help ensure that all systems will work smoothly under high order volume processing conditions. We encourage the Exchange to conduct future tests designed to stress the automated systems and electronic linkages of the NYSE, its member firms, regional stock exchanges, and intermarket components.

Since October 1987, the NYSE has modified its overall computer capacity goals. Rather than planning for its systems to be capable of routinely handling a 600-million share trading day by 1990, the Exchange is planning to have systems capable of handling a 1-billion share trading day by December 1989. Assuming present rates of volume growth, NYSE officials told us they believe that this represents the development of a system that can process roughly five times the average daily trading volume the Exchange expects to receive.

In addition to raising its overall computer capacity goals, the NYSE has also refined how it translates anticipated trading volumes into associated systems requirements. For example, the Exchange now will estimate the capability of subsystems supporting individual trading posts to handle anticipated trading volumes. Before October 1987, NYSE estimated the effect of volume only on the entire system that supports all trading posts. This is a significant change because during October 1987 the volume of orders overwhelmed the ability of some subsystems to print orders at some trading posts. NYSE has also established specific performance goals for its automated order processing systems.

In response to our recommendation, the Exchange plans for an independent assessment of its automated order processing systems. Exchange officials said they anticipate selecting a firm by the end of April 1988. SEC officials informed us they have no current plans to acquire additional technical resources to independently assess the NYSE's trading systems. However, they said they agree with the need for an independent assessment of the trading systems and with the Exchange's plans to contract for such an assessment. They said they plan to review the results of the Exchange's independent assessment, and they believe this review fulfills SEC's regulatory responsibilities. We continue to believe that SEC needs its own capability to evaluate computer systems.

Ability to Identify Program Trading

In our second report, we reviewed the NYSE's ability to identify program trading through its automated systems. We: (1) obtained some information on the computer systems of 10 major firms that are members of the NYSE, (2) determined whether the NYSE's and members' systems have the capability of reporting basket trades (defined as program trading) and differentiating between trading strategies such as index arbitrage and portfolio insurance, and (3) determined whether the NYSE's and members' systems have been improved since October 1987, to permit more accurate reporting of various program trading strategies.

Member firms have direct computer-to-computer links with the NYSE for placing orders automatically and receiving order confirmations. All 600 of the NYSE's communications links are capable of handling any type of order, but some firms have dedicated certain communications lines for program trading strategies such as index arbitrage. Other firms conduct such trading out of specific branch offices that may be given unique identification codes. About 56 of the 600 lines and 24 branch office codes have been so identified. To the extent that member firms have informed it, NYSE therefore knows which communications lines or branch identification codes are being used for program trading.

NYSE has not asked its members to identify specific types of program trading strategies such as index arbitrage and portfolio insurance, and its computer systems cannot identify these strategies. Computer systems at 6 of the 10 member firms we surveyed, however, have this capability. The NYSE is considering alternatives to identify index arbitrage orders. Now that the SEC has approved the 50-point index arbitrage DOT cut-off rule, we believe it important that the Exchange develop this capability quickly in order to enforce the new rule.

CRASH STUDY METHODOLOGIES

Let me now turn to our review of the study methodologies used to determine the effect of program trading on the October price declines. Of all the sources of selling pressure that existed on October 19, 1987, program trading has been subjected to the most intensive scrutiny. The SEC, CFTC, and Brady Commission reports all discussed the role program trading played. The Brady Commission and SEC reached similar conclusions about program trading--that it was a significant factor contributing to the decline--although the Brady Commission conclusion related only to portfolio insurance strategies. CFTC, on the other hand, concluded that hedging in the futures markets and index arbitrage did not interact to cause a downward spiral in stock prices.

It is very important to emphasize that these conclusions do not necessarily contradict one another. The three studies' objectives with respect to the effects of program trading differed. The Brady Commission did not have a particular point-of-view, but considered program trading as one of several institutional trading strategies that illustrated the linked nature of the markets. The CFTC set out to substantiate or refute the so-called "cascade scenario". This may occur when hedging in futures markets sets off a chain reaction of index arbitrage selling in the equity markets which is then followed by endless rounds of subsequent futures hedging and index arbitrage equity sales, leading to a downward spiral of equity prices. The SEC had a number of objectives, but most important, set out to identify whether futures related program trading activity was associated with periods of significant equity price changes during the market crash period. This particular SEC test for effects does not necessarily require that the cascade scenario be validated.

Each of the three study groups used similar data and supplemental interviews to estimate the extent and timing of program trading that occurred, and the resulting estimates were similar. Each group matched the timing of trading activity and market price changes to ascertain if the former affected the latter. No more sophisticated quantitative analytical techniques were used because none of the study groups believed them to be feasible.

The objectives of each of the studies, and the judgments made by each study group in determining trade timing and intervals to review contributed to the different conclusions. And, because of the differing study objectives, the biggest contributing factor was the reduced number of program trades, considered futures related, that CFTC used in matching trades with price declines.

SIMILAR ESTIMATES OF TOTAL PROGRAM TRADING

Estimates of the levels of total program trading produced by the SEC, CFTC, and the Brady Commission on both an interday and intraday basis are similar. The SEC and CFTC derived these estimates primarily from a survey of 16 firms that were large program traders, active in the futures markets, either for their own account or for the accounts of others during the weeks preceding the crash. The SEC and CFTC, in turn, provided all of the information collected to the Brady Commission.

Each group supplemented the survey data by conducting interviews of the firms' customers to determine more precisely the trading strategies the firms employed. In addition, the groups verified the survey data against audit trail transaction data from the NYSE and CME. Total program selling reported by the SEC and CFTC was about 89 million shares on October 19 or 14.7 percent of the volume traded that day on the NYSE. We calculated the Brady Commission estimate at 18.9 percent. The estimates of program trading used by the Brady Commission were expressed in dollars and had to be converted to share volume based on information in the Commission report. The somewhat different results can be accounted for by the inaccuracies in the calculation used to convert billions of dollars of selling activity into millions of shares sold.

Total program selling drops dramatically on October 20 in the SEC and CFTC studies. The numbers of total shares sold through program trading strategies on the NYSE that the SEC and CFTC reported are not strictly comparable on October 20. However, CFTC officials told us that their study's estimate is inaccurate because of a computer error and the actual number should be comparable to SEC's.

DIFFERENT APPROACHES TO ASCERTAINING ASSOCIATION BETWEEN PROGRAM TRADING AND PRICE VOLATILITY

As we stated earlier, much attention was directed in the CFTC, SEC, and Brady Commission studies to the effects of program trading on stock prices. While the Brady Commission seemed to place it more in context with all trading throughout the crash period, the two federal regulatory agencies more directly addressed the question of causality between program trading and stock price volatility. The SEC and CFTC studies are more comparable on specific aspects of their analytical approaches, so we focus on them. Where appropriate, we also comment on the Brady Commission's analysis.

The analytical approaches used by SEC and CFTC differed in two major ways. First, because of different study objectives SEC and CFTC used different categories of program trades to ascertain the effects of this trading technique on price changes. Second, SEC and CFTC emphasized different intraday time intervals over which to measure the effects of trades on prices.

Different Groups of Program Trades

SEC included in its analysis of the effects of program trading, all index arbitrage, index substitution, portfolio insurance, and all other program trading on the NYSE. Because the CFTC was testing for the existence of the cascade scenario, it included all index arbitrage and index substitution, but did not include portfolio insurance stock selling because it involved no futures component. By limiting its analysis only to program trades that included a futures component, CFTC reduced the amount of trading considered to be relevant to the effect of futures trading on the stock market decline to less than half of that used by SEC.

The SEC's report indicates that index related program trading on October 19 amounted to 89 million shares. On the other hand, CFTC considered only 37 million of those shares to be relevant to its test for the existence of the cascade scenario. The CFTC did not include the other 52 million shares, because those trades did not include a futures component, and because it was testing for the interaction between futures hedging and index arbitrage that would have to have been occurring in order to verify the existence of the cascade scenario on October 19. The SEC was testing for the effects of all futures related program trading. Because its interviews with traders and customers indicated that the 52 million in program trade share sales would have occurred in the futures market were it not for the large apparent discount, SEC included those share sales in its analysis of the effects of futures related program trading on the price declines.

Different Intraday Intervals Selected for Analysis

SEC analyzed program trading data all-day on October 19 and 20 and at 30-minute and 10-minute time intervals, while the smallest interval CFTC used was 30-minutes. Selection of time intervals is important in these data analyses because the shorter the time interval examined, the greater will be the incremental impact of a large trade on beginning and ending stock prices, other things being equal.

SEC officials told us that program trading strategies tend to hit the stock market in concentrated bursts which temporarily exceed the markets' ability to absorb them. For example, the SEC report stated that, on October 19 between 1:00 and 2:00 p.m., the combination of index arbitrage and portfolio insurance selling totalled more than 40 percent of volume in the stocks comprising the S&P 500. Furthermore, they reported that this selling totalled more than 60 percent of S&P 500 volume in three different 10-minute intervals within that hour. Although SEC officials told us they relied on all the data to reach their conclusions, the 10-minute interval analysis shows the greatest effects of program trading on stock price volatility.

CFTC officials said that available data was not precise enough to analyze 10-minute intervals. They pointed to the fact that the trade execution times were difficult to determine and some trade order entry times were not exact. The Brady Commission report presented data in 30-minute intervals. A Brady Commission official said he did not believe that the available data was accurate enough to permit a meaningful analysis of trading by 10-minute intervals. SEC officials said they believed their conclusions were supported by examination of the 30-minute interval data as well as the 10-minute interval data.

The SEC assumed a 5-minute time lag from order entry to execution in arraying its trading data. Both CFTC and the Brady Commission used order entry times. This difference could change the alignment of trading and price change data and lead to different conclusions about the effect of program trading on the price decline.

SEC officials told us that orders for stock trades are usually executed within 90 seconds from entry into NYSE's DOT system. They said they assumed a 5-minute delay to account for the confusion and problems in executing orders that occurred on October 19 and 20. CFTC and Brady Commission officials told us they thought no reasonable assumption could be made about delays in execution times because of the extensive number of trading halts and DOT system problems that occurred. SEC officials told us they believe that the 5-minute assumption did not materially affect the analysis. They said that because program trading occurred in concentrated bursts, the effect would have appeared to be equally concentrated using order entry times because it would have appeared 5-minutes earlier.

MORE RIGOROUS ANALYSIS IS DIFFICULT

As I indicated, the basic approach followed in the studies involved comparing program trading activity with price change data during specific time periods and looking for significant associations between those two measures. Officials of all three study groups told us that a rigorous quantitative analysis of the trading data was not possible given the short time frames they had to complete the studies, and the limitations of the data. SEC officials also pointed to the lack of a proven economic model that could handle the complex variables involved in a phenomenon such as the market crash. In addition, they noted that it may be impossible to measure psychological, political, or macroeconomic variables. Thus, the conclusions of the studies are subjective and depend on such factors as point-of-view, differing regulatory perspective, and judgment of the study group.

CONCLUSION

Reasonable people may disagree about which of the measurement methodologies and interpretations of data are most appropriate. And because of the acknowledged limitations of the studies of program trading, we will probably never know its precise effects on price behavior of markets during October 19th and 20th.

From the standpoint of seeking solutions to better enable market participants and investors to cope with a major price swing, I am not sure we need to know the precise effects of the new market demands on price volatility. The buying and selling of large groups of stock baskets is a reality of today's markets. Program trading of these baskets is a technique used by institutional portfolio managers who control huge positions. When all these traders want to move in the same direction, either buy or sell, they are bound to put stress on the markets. The key policy question that must be answered is: what is the best way to manage this stress--try to control it when it becomes a problem or adjust market structures to better deal with it day-to-day.

Progress has been made in some areas to enable the individual markets to better cope with large trading days. However, other changes, such as price limits on stock index futures and the cut off of the NYSE's DOT system for index arbitrage, have not been agreed upon by all of the federal and self regulators. Because these changes have not been coordinated across markets, they have potentially adverse implications for intermarket stability. These uncoordinated changes greatly concern us. Differences of opinion among the exchanges and federal regulators must be resolved quickly by the President's Working Group. If this does not occur, the disagreements should be dealt with through Congressional action.

SCOPE AND METHODOLOGY

We conducted interviews and gathered data from the following federal agencies, self-regulatory organizations, and others during our work on these assignments.

Federal Agencies
Commodity Futures Trading Commission (CFTC)
Department of Treasury
Federal Reserve System (Fed)
Securities and Exchange Commission (SEC)

Self-Regulatory Organizations
American Stock Exchange (AMEX)
Chicago Board of Trade (CBT)
Chicago Board Options Exchange (CBOE)
Chicago Mercantile Exchange (CME)
Midwest Stock Exchange (MWSE)
National Association of Securities Dealers (NASD)
National Securities Clearing Corporation (NSCC)
New York Stock Exchange (NYSE)
Options Clearing Corporation (OCC)
Pacific Stock Exchange (PSE)

Other Organization
Securities Industry Automation Corporation (SIAC)

Progress Analysis

Our review of regulators' progress in implementing suggested actions to better manage a future market crisis involved analyzing: (1) market crash reports prepared by the Brady Commission, SEC, CFTC, NYSE, and CME; (2) proposed rule changes submitted to the SEC and CFTC from the securities and futures self regulators respectively; (3) operational and communications changes proposed or implemented to facilitate intermarket coordination and improve market capacity; and (4) results of intermarket meetings and plans for future meetings.

Methodologies Analysis

To prepare a description and comparison of the SEC, CFTC, and the Brady Commission reports as they pertained to their evaluation of the effects of program trading on intraday stock price volatility we: (1) obtained and analyzed the official reports from the SEC, CFTC, and the Brady

Commission; (2) studied research literature on the effects of program trading on stock price volatility obtained from both the academic community and other government agencies; (3) examined some of the data provided by major firms which formed the basis of the SEC and CFTC studies; (4) talked to members of the SEC, CFTC, and the Brady Commission study groups; and (5) obtained informal comments on this analysis from government agencies and external consultants.

We did not attempt to independently verify the accuracy of the data provided by major firms to the SEC, CFTC, and the Brady Commission. Furthermore, we did not verify the accuracy of data transcription from the data forms provided by the major firms to the computer generated analyses of the SEC and CFTC.

Analysis of NYSE Computer System Enhancements

To assess NYSE's upgrades to its systems' capacity we toured the exchange floor and the Securities Industry Automation Corporation (SIAC) computer facility and observed the new specialist posts, additional printers, automated specialist books, and the new Limit Order System. We did not corroborate written or oral representations due to time constraints and the proprietary nature of certain information.

We interviewed officials from 10 of the 31 brokerage firms that the NYSE has determined execute program trades for their own or client accounts. These firms were randomly selected and represent both the large and small volume program traders. We also interviewed various NYSE and SIAC officials. We reviewed pertinent documents obtained from these sources and reports provided by SEC, the Brady Commission, and NYSE.

MARKET ACTIONS SINCE THE CRASH

Federal and self regulators are working together and within their markets to improve market operations in response to the October 1987 crash and to the recommendations contained in the studies that followed. These changes relate to communication and data sharing, market surveillance, financial surveillance, margins, clearing and settlement procedures, market making systems, and capital adequacy and credit availability.

Communication and Data Sharing

-- The self regulators are trying to make trading information more useful and timely. For example, CBOE has developed a "wish list" of trade information which includes the percentage of stocks currently open for trading in various indices, a listing by index of stocks delayed or halted, and the index values. NYSE is determining the feasibility of providing this information through the Consolidated Quote System of the SIAC or through private vendors. In addition, CBOE is drafting a joint letter with other exchanges to a quotation vendor requesting automation of trading halt indicators and improved quality controls.

-- The NYSE is looking into disconnecting the ticker tape for routine trade information if, in high volume situations, the tape is more than 3 minutes late. The tape could then be used as a message board during such periods. The tape could contain messages such as the current Dow Jones Industrial Average and the time needed for trade executions. NYSE officials told us that the disconnection of the ticker tape might prevent investors from being misled by untimely information. In addition, the NYSE is considering arrangements with private market data vendors by which it would be able to page into the vendors' systems to directly provide operational messages.

-- NASD has introduced a new communications enhancement called the Order Confirmation Transaction (OCT) Service. This service will enhance communication among market makers, eliminating the need for telephone contact, and create an audit trail of firms accepting, rejecting, or not responding to market orders.

-- NASD officials told us their Board of Governors has approved a rule which will streamline its emergency decision-making process. They plan to submit this proposal to SEC for approval.

Market Surveillance

-- Futures exchanges currently attend subcommittee meetings of the Intermarket Surveillance Group (ISG) concerning stock index products. This group coordinates investigations of trading abuses such as stock manipulation. However, futures exchanges are not formal members of the group. Negotiations are underway for a more formal role for futures exchanges in the ISG.

-- In an attempt to detect frontrunning from the stock to the futures markets, the NYSE will provide futures exchanges with audit trail information on stock trading that will enable them to conduct routine surveillance for frontrunning. This information includes times of trades, identities of the buyers and sellers, and whether the trade is for a customer or for a firm's own account.

Financial Surveillance

-- CME hosted a meeting in March 1988, concerning financial surveillance data. The exchanges attending discussed the available financial surveillance information and procedures currently followed in the futures and securities industries. The exchanges want to determine what information they can share on a routine and emergency basis.

-- Futures and options clearing organizations plan to routinely share cash flow data on member firms and their affiliates. CBT and CME also plan to share information on margin excesses and deficits, option premiums, and, possibly, on firms' margin requirements.

-- CFTC is refining large trader and exchange clearing member position data. It is producing aggregate intermarket position data for CFTC-regulated markets. The purpose is to identify concentrations of similar or related positions in futures markets held by customers or clearing firms on multiple exchanges which could pose a financial threat to a clearing firm.

Margins

-- CBT has tripled its Major Market Index-Maxi futures margins since October 19. The initial margin was increased from $4,500 to $15,000 per contract and the maintenance margin was increased from $3,000 to $10,000 per contract. The new initial speculative level is equivalent to approximately 17 percent of contract value. CBT officials told us they had raised margins because CFTC and SEC wanted higher stock index futures margins.

-- CME has raised its initial speculative margins from $10,000 to $19,000 and its maintenance speculative margins from $7,500 to $10,000. Margins for hedgers were also increased from $7,500 to $10,000.

-- According to CBOE officials, SEC suggested that options exchanges increase their margin requirements. Accordingly, NYSE, AMEX, PHLX, PSE, and CBOE raised margin requirements for broad-based market index options. The new requirements were designed to protect both investors and firms by assuring that broad-market index option positions are adequately covered. In addition, the new margin requirements should maintain a reasonable cushion of protection for investors.

Clearing and Settlement Procedures

-- The National Securities Clearing Corporation (NSCC) filed a proposed rule change with the SEC to require its members to make an additional clearing fund deposit if the member's clearing fund obligation increases by 10 percent during the month.

-- CBT, CME, and OCC asked NSCC to participate in a routine clearing information sharing effort. NSCC is considering the proposal.

Market Making Systems

-- NYSE and AMEX have been reviewing the performance of specialists to determine if they met their market making responsibilities during the crash period. Based on these reviews, NYSE has reallocated six stocks and AMEX has reallocated two stocks.

-- The NYSE has developed additional specialist performance standards based on objective measures, such as DOT order handling and reporting and the timely opening of securities.

-- NASD has submitted a proposed rule change to SEC which will increase the penalty for an unexcused market maker withdrawal from a 2 to 20 business day suspension from trading in that security and has reduced the number of reasons for excused withdrawals.

-- NASD has also submitted a proposed rule change to SEC to enhance its Small Order Execution System (SOES). These enhancements include, among others, a change from voluntary participation to mandatory participation in SOES, thereby, committing all market makers to make a continuing market in NASDAQ/NMS securities; continued operation of SOES during locked/crossed markets; and creation of different maximum size limits for SOES orders, depending on the security.

Capital Adequacy and Credit Availability

-- CME amended a position limit rule which requires traders in the S&P 500 futures and option contracts to obtain prior CME approval before exceeding speculative, hedge, arbitrage, or spread limits. However, under this proposal, a trader intending to exceed such limits could request verbal approval from CME before exceeding the limits. If verbal approval is granted, the trader would then be required to file the written application with CME promptly after receiving such verbal approval. This rule amendment will enable CME to maintain stricter control over its members' position limits and to review each application to exceed position limits on a case-by-case basis. According to CFTC, the requirement that traders obtain prior exchange approval before exceeding speculative limits is a condition imposed by most exchanges.

-- The NYSE Board approved an increase in the minimum capital requirement for specialists from the greater of $100,000 in capital or an ability to assume a position of 5,000 shares in each of the common stocks in which they make a market, to the greater of $1,000,000 in capital or an ability to assume a position of 15,000 shares in each common stock. NYSE is also exploring the need for specialists to maintain additional lines of credit and other lending arrangements.

-- The AMEX is in the process of working on a proposal to increase specialist capital requirements. Current capital requirements of the greater of $100,000 or an ability to carry 2,000 shares of each security are far below the actual financial commitments of the AMEX specialists. The AMEX believes that an increase in the minimum capital requirements may be in order to reflect more closely the normal level of capital used. The AMEX believes such increases could more accurately reflect the adequacy of specialists' capital and emphasize their obligations.

-- The NYSE also has implemented a change in its frequency of monitoring specialists' capital. In the past, whenever a substantial increase or decrease occurred in the price of NYSE listed securities overall or in an individual security, the NYSE obtained capital information from each specialist unit or from the individual specialist over the telephone. In a memo to specialist organizations dated February 23, 1988, the NYSE reported that in light of the current increase in market volatility and in order to formalize past practices, specialist units were asked to report capital and position data on a daily basis. Two forms were developed: one was designed for self-clearing specialists while the other is for specialist units that clear through other brokers.

-- Discussions on the need for improved communication are underway between banks and clearing organizations. CME held a meeting on April 4, 1988, with banks and clearing organizations to discuss ways to improve communication. The group plans to include bank phone numbers in its telephone directory, develop guidelines on requesting an extension of Fedwire hours, and discuss access to collateral and pay and collect information by banks.

The CHAIRMAN. Thank you, Mr. Bowsher.

Let's go back to the President's Intermarket Working Group. I've heard some reports, both directly and indirectly, that the group is making progress. In fact, I've heard that they are going to propose fairly substantial reforms to the President, and that most of these reforms will take the form of regulatory changes instead of legislative proposals.

If you had to rate the progress being made by the Working Group,[1] how would you rate it?

Mr. BOWSHER. Well, I'd rate it somewhat like this:

One, I'm glad they're meeting because I think we need a Working Group like this.

Two, I'm impressed from what Mr. Gould has told me, George Gould of the Treasury, that the principals are coming to these meetings. It's just not staff people meeting there so that you have Mr. Greenspan, Mr. Reuter, Wendy Gramm, the real principals, there.

I am pleased that they are holding to a 60-day timeframe to try to report out here on May 18, because I think it's important that we do this on a timely basis and not let it drag on.

And I think they're going after some of the main issues. The big question we don't know is whether they can agree on these major issues. And that's what we will just probably have to wait and see when they report on May 18.

The CHAIRMAN. You say the principals themselves have been meeting?

Mr. BOWSHER. That's my understanding.

The CHAIRMAN. Do you think they've established an effective working relationship with the exchanges and the various markets?

Mr. BOWSHER. Both Mr. Gould and Mr. Ruder have told me that the exchange of ideas and the working together is going better than they had hoped for.

The CHAIRMAN. Is that good? What was their level of hope, their level of expectation? Hope springs eternal?

Mr. BOWSHER. I don't think it was too high. In other words, they were all a little wary of how the meetings would go, I think. But they seemed a little more optimistic when I talked to them recently.

But I think that these are tough issues, and you're bringing together groups here that, you know, have a lot at stake. And so to bring everybody into agreement here will not be easy. I think we have to face that.

The CHAIRMAN. Just looking around the table, I see that we are joined now by Senator Lugar and, of course, Senator Daschle was here earlier. Senator Harkin, Senator Bond, and other Senators are going to be coming in. There's a fair amount of concern up here too.

I'm wondering how we measure the success of the Working Group's efforts. What kind of a litmus test do we use to determine whether they're moving with adequate speed?

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[1] This is in reference to the President's Working Group on Financial Markets.

For example, should we be looking at the ability of this group to implement a coordinated circuit breaker mechanism across markets as a benchmark of their ability to resolve problems without a legislative mandate?

Mr. Bowsher. I think that is one of the keys. In other words, I think that some agreement on the circuit breakers would be one of the areas that I would hope their report would contain. And I know it's one of the areas that they're putting high priority on.

The Chairman. You understand my concern. If these issues could be worked out without a legislative mandate, that would be fine. If they can be worked out by agreement, by administrative action, that's fine with me. But I'm concerned about the possibility that the agencies can't work things out on their own. In that case, we're going to have to step in with a legislative mandate. I think there's enough concern here about this problem to do that.

Now, we talk about the circuit breakers. Some market participants have concluded that informal trading halts or pauses can only exacerbate a market decline.

What's your personal opinion on that?

Mr. Bowsher. Well, I don't have a personal opinion. I think that what you have here is a Brady report that came out and recommended it. And one of their basic arguments for it is that it happens anyhow when you have trading days of great volatility. And it would be better to have some coordinated plan up front on how it should be done rather than to have it being done on an ad hoc basis in those kinds of days of stress. I agree with that. I really do.

If you're going to have them, I think it's better to have some kind of a plan. And that's why we recommended some kind of a contingency plan be developed here in that.

The actual debate over whether circuit breakers per se are good or not, I think you're going to hear a lot of arguments on both sides even if you have a plan that's agreed to. I think the debate will go on.

The Chairman. You don't think the debate is clear enough that the Congress should be moving with legislation in this area?

Mr. Bowsher. I think it might be better to see how the Working Group comes up with their recommendations. And I think you might also have to have a period of experimentation; in other words, to see how some of this works.

I think it's very hard to maybe come up with a set of circuit breakers that would be put in place for a long, long time. I think we might have to put some in place, try to test them for awhile and see how they work, see what problems there are and maybe make some changes to them.

The Chairman. About my legislation to create a Coordinating Council, should we hold back on this for awhile to see whether the Working Group is able to work things out?

Mr. Bowsher. Well, I think this group, being a working coordinating council, was something we needed. I definitely think you have to have either some kind of successful coordinating group, or you've got to bring some consolidation into the regulatory arena.

Most of the regulators, most of the market, and the self-regulatory organizations are saying they don't need consolidation, they can work together and work these issues out and coordinate. And maybe they can. And if they can, why, maybe that's the best way to go.

But I think in the final analysis you've got to get these linked markets being properly regulated in a coordinated fashion and working together in a coordinated fashion because, see, what really has happened is they've been linked by technology and by individuals more than any plan that was ever put together by the leadership, either political leadership or regulatory leadership, or even the market leadership.

And so what you've really got to do, I think, after watching what happened on October 19 and 20, and some subsequent days is you have got to come up with a more organized way of these markets working together because they are linked.

The CHAIRMAN. Wait a minute. In that organizing process, you've got to have the same sets of definitions or, at least people have to be able to speak the same language.

I found fascinating your analysis of the methodologies used by the CFTC and the SEC. They came to many different results. Are these different conclusions essentially the product of different definitions of what constitutes futures-related trading in the stock market?

Mr. BOWSHER. Basically, they are, yes.

The CHAIRMAN. Is it fair to say that the CFTC report utilized a fairly conservative definition of futures-related trading, limiting it to those trades where a seller of a stock also had a position in the futures market? Based on that methodology, they concluded that the cascade effect was not available on October 19.

Now, you've looked at this. Based on the information you have, do you think that their's was a supportable and correct conclusion?

Mr. BOWSHER. Yes. I think that the SEC was the more comprehensive one, but I think also you have to recognize that much of the selling was forced over into the equities markets by what was happening in those 2 days, as some of the computer systems and some of the other systems broke down, you were forcing people into different strategies than what they originally wanted to do.

So I'm not sure that the study of those 2 days either way, whether you used the CFTC definition or the SEC definition, will give you the information you really want. That's one reason why in my statement I recommended maybe that the Fed go back and restudy the issue, maybe over a longer period like the past year. And now with the extra input that they've had of the greater volume and everything like that.

In other words, their study, which was issued in 1984, and which Congress asked for in 1982——

The CHAIRMAN. Their study—what do you mean?

Mr. BOWSHER. The Fed, the Federal Reserve study.

I think it's somewhat dated now, and I think it had certain limitations in those days the way they did it. And I think they would have much more data now. And I think probably a better study, if they updated their findings and looked at new data in the past year or two here, and I think maybe that kind of study might give the decisionmakers, including the Congress, a better sense of what was happening and what is happening than to try to reconcile what was happening on those 2 days.

The Chairman. I want to make sure I understand this.

The SEC utilized a far broader definition of futures-related trading than the CFTC?

Mr. Bowsher. That's right. And what they really——

The Chairman. They included virtually any sale of a basket of stock that was linked to the stock index, is that correct?

Mr. Bowsher. That's right. And they included the ones that went into the equity markets for the sale where the CFTC excluded that.

The Chairman. In fact, it didn't matter to the SEC whether the trader was active in the futures market at all? Is that correct?

Mr. Simmons. Yes, I believe it did. The interviews that the SEC conducted of the traders revealed that many of those who did portfolio insurance in the equity markets would have done it in the futures markets.

The Chairman. But they also included people who were not active in the futures market. Is that correct?

Mr. Simmons. I think there's some dispute about that. I think some of the——

The Chairman. Well, I understood that the SEC included in its definition of program trading portfolio managers who were simply selling stock from portfolios which generally tracked market indexes. Is that correct?

Mr. Simmons. That's correct.

Mr. Bowsher. That's right. And so what you really had was the SEC, including the big trading on portfolio insurance strategies.

The Chairman. Well, can we conclude from this that as long as the performance of institutional money managers is judged on the basis of how they do against the broader market indexes, there's going to be program trading whether or not there's a stock index futures market? Is that correct?

Mr. Bowsher. We definitely can do that in the equities market. You don't have to do it exclusively in the futures market. That's correct.

The Chairman. I mentioned this because I think sometimes the press confuses program trading. The public does. I took a long time figuring it out. As broadly defined by the SEC, they confuse it with index arbitrage, which is a trading strategy specifically linked to the futures market.

Mr. Bowsher. Mr. Chairman, sometimes I think people do get that confused. You know, program trading is kind of an umbrella term. And really under program trading you have different strategies, and the two major ones are index arbitrage and portfolio insurance.

The Chairman. Well, it may be that innovations in the stock market, such as a creation of SuperDot, may make all basket trading a lot easier, not just arbitrage trading. These has as much impact on price volatility as have the advent of the stock index futures and options markets.

I think Mr. Katzenbach's study for the New York Stock Exchange supports that conclusion. Do you agree? Or do you want to think about that one a bit?

Mr. Bowsher. I don't think we've studied that to where I could make a comment.

The CHAIRMAN. Fair enough.

I have a number of other questions. If we don't get to them today, I will include them for the record. But I just want to raise one.

I've heard some complaints about the regional exchanges. The New York Stock Exchange's computer capacity building plans don't include them. Regional trades on the list system were run through an antiquated card printer system.

Are those complaints fair?

Mr. BOWSHER. Howard Rhile, who is our computer specialist, has been studying this.

The CHAIRMAN. Mr. Rhile.

Mr. RHILE. Currently, the interim plans of the exchange are to continue running the ITS transactions through the card printers.

The CHAIRMAN. I'm sorry. I didn't hear the last part of your answer.

Mr. RHILE. Currently, the interim plans of the exchange are to run the ITS transactions through the card printers. But they have moved quite a bit of traffic off the card printers onto the electronic display books.

The CHAIRMAN. Does NYSE have any plan to test the entire intermarket system for what might happen on a 600-million-share day?

Mr. RHILE. We believe that they should not only test the workings of the system at the exchange, but also the intermarket system as well.

I have not seen the test plan for this Saturday, but I would expect that either that plan or a future plan would include such a test.

The CHAIRMAN. Have you passed on to them that you think that would be a good idea?

Mr. RHILE. We have said such in our report.

The CHAIRMAN. Has that been greeted by them with unrestrained joy or with something a little bit less?

Mr. RHILE. We have not heard from them yet on that. I expect we will soon.

The CHAIRMAN. I would hope so.

Mr. BOWSHER. Though I will say this, Mr. Chairman, we've had very good cooperation with the New York Stock Exchange.

The CHAIRMAN. I am also concerned, not as one who is involved in these markets, but just as a citizen, that if you do have that 600-million-share day, that everything should not go blooey—that's a technical parliamentary term from Jefferson's manual, I want you to know.

Mr. BOWSHER. And I think your point is well taken. It's one that we've stressed not only in our report but in discussions with them, and that is, we do believe that the testing has to be pretty thorough and it has to include, eventually, everything. Maybe not in the first test that they run here, but eventually we would like to see as much testing as possible of these systems to make sure that any bugs, any problems that can be anticipated can be shown during the testing and work done prior to having these big days.

You're always going to get some surprises, there's no question about that, on really big volatile days. But I think you can do a lot in pretesting these systems, and that'what we've urged here.

The CHAIRMAN. But I think the chore is to anticipate what surprises might be out there, and to eliminate as many of them as possible.

Mr. BOWSHER. That's right.

The CHAIRMAN. Senator Lugar.

STATEMENT OF HON. RICHARD G. LUGAR, A U.S. SENATOR FROM INDIANA

Senator LUGAR. Thank you very much, Mr. Chairman.

I might ask, first of all, the unanimous consent that an opening statement by Senator Karnes be made a part of the record.[1]

The CHAIRMAN. Without objection, it will be part of the record.

Senator LUGAR. Mr. Chairman, I congratulate you on holding the hearing. Likewise, on your own legislative initiatives in this regard.

I just want to think with the panel for a moment about concerns that some of us have had as we visited with Nicholas Brady, for example, or others who have come to us informally.

A good number of constituents always perceived the New York Stock Exchange, the commodity exchanges, and various other markets you've described today as legalized gambling. They perceive clearly an element of price discovery, and some ability to float issues and obtain capital in the country, but nevertheless, a very high degree of speculation, and a person who is dedicated to speculation as opposed to investment.

Now, essentially we've calmed the waters of those ideas over the years. I can recall many hearings, people coming from the farming production side of it, in particular, very concerned about all this. Now suddenly we come to October the 19th, and it's not only these persons whose worst dreams are fulfilled, but a very large number of people in the public as a whole.

Now, I appreciate the point you have made today about the fact that the President's Commission is moving along, and that mercifully the people were actually talking to each other, and that even though they may not agree, there's been a good dialog. But I'm one who thinks the whole pace has been extraordinarily leisurely given the seriousness of the problem.

I don't believe that people who are involved in the regulation of these markets appreciate the fact that small investors in America, by and large, left the market after a concerted effort of years, by many of us involved in advocacy of free enterprise, to try to interest people in investing in stocks and in having a part of the equity of this country.

People can make a point that they can do so through mutual funds and through other instruments. But, even here, the performance of those investments have not been encouraging to people who are thinking about the small person in America. A small person in America right now feels that this market is out of control with regard to anything he or she might do. The most prudent thing to do is to sit on the sidelines in Treasurys or in CD's or in money market funds while the professionals clobber each other and finally either reach consensus or have a degree of chaos.

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[1] See p. 213 for the prepared statement of Senator Karnes.

I think this is a very discouraging situation which has not changed I think in 6 months.

Now, Nick Brady and his group apparently came along with the suggestion, first of all, that somebody needs to be in charge. He suggested the Chairman of the Federal Reserve. The Chairman not only ducked for cover but simply indicated he wanted no part of it, and I understand part of the history of that and why that might be so. We seem to be coming to the position now that a committee of persons or a council other than a single entity will oversee the sitution. However, there still is no one in charge that I can see.

It's conceivable, and in a moment I'll ask for your judgment, that the President of the United States should be in charge, or the Secretary of State should be in charge? When we finally came to the crisis, Howard Baker found Jim Baker and Alan Greenspan, wherever they were, one out of the country, one in Texas. Finally they go back together, and that was salutary, that there seemed to be someone in charge.

That was an alarming period for those of us interested in just how our Constitution works and how the powers work. I'm not certain anybody is focusing the skill that they need to on having somebody in charge. If not the Fed, maybe the President. I'm not really certain that a collective group of exchange people is good enough for this situation.

Now, secondly, Brady apparently said at some point if the whole thing is going haywire, you may have to call time out. Whether you call it a circuit breaker, or a close of the market, or what have you, that is essentially what he had in mind. It is a very important concept for anybody who has ever thought of the markets going on and on, and the worldwide nature of the markets right now where you can trade around the globe.

I suppose the third thing they thought of was that there are now more instruments available, more sophisticated techniques, more abilities, as you've called it a basket of securities or a basket of options. This type of thing is beyond what we might have envisioned awhile back, and our mechanisms are not really prepared for it.

There's the real question. In this kind of a world, is there any place for the small investor? How in the world does a small investor, for example, even in mutual funds now, who, on October the 19th at about noontime, decided he wanted to get out, and at the end of the day found the market was down 509 and redeemed his shares at that point. He didn't have the option of leaving at noon or somewhere along the way. He really took the bath all the way.

Now, one can say, well, that's the rules of the game, that's the way it's played, but that's not good enough. I don't mean to stress any of you because you are our lead-off witnesses today, but it's sort of a good time to say that the degree of urgency displayed by everybody in this seems to me to be alarming in itself.

I just hope for the good of everybody involved that we do not have a severe decline. The poor people have gotten together and made up their minds. In that case, there really would be a housecleaning.

It seems to me only if the legislature here will be prepared to reorganize a lot of things that we can avoid disaster. I think Nick Brady has been admirable in his patience. But he's going cap-in-hand around these halls asking somebody to get concerned, and a good number of us are.

Now, I don't know which option I would choose, the Leahy bill or the Proxmire bill, or maybe some other bill that we ought to evaluate. But I must say, as one Senator, I take very seriously the thought that we might legislate and legislate in a hurry if, in fact, people don't get on with it.

I think it's well and good to have people trundling along in this situation. The President's Commission or not, it appears we are in jeopardy and, furthermore, the problems of the small investor haven't been addressed one wit.

Given that situation, what do you have to say to that?

Mr. **Bowsher**. Well, that was a very good summary, Senator. [Laughter.]

I truly agree with you that the pace has been too leisurely. In fact, I think if the Congress had not stepped in in January and held the hearings, as they did in various committees in both the House and the Senate, I don't think we would have anybody getting together.

In other words, they would get together and talk about it, but I mean as far as coming up with some real contingency plan, and where the big thing you need is you've got to know who's going to make the decision on these very fast moving days when you have a real crisis on your hands. And that's what we've got to achieve here.

Now, we testified on January 26, and I called for a contingency plan to be put together within 60 days. That would have been at the end of March, roughly speaking. But nothing got organized. And it wasn't really until, finally, the people at Treasury, I think, finally stepped in and took some leadership here. Now I think we're going to get the plan 45 days later than that, but we're 3 weeks away from that date.

So, I think we probably should wait and see what they do come up with. But as I said in the last sentence of my testimony today, if we don't get action, if we don't get some real progress out of this Working Group, then I think Congress might have to act.

Senator **Lugar**. Do you share the thought that there are at least a couple of agendas here? One is clearly a functioning market for all comers, anybody who wants to play. But the other is still how do we have an economic system in which tens of millions of Americans are involved in the equities of this country? How do we fashion the market procedures that make that even remotely feasible, given the catastrophe we've had?

I understand that people are dealing now with problems of program trading or large movements in the arbitrage markets, rather sophisticated things, and these are tremendously important. Billions of dollars are involved in them. I don't diminish that for a second.

But, in the public policy area, some of us have got to be concerned about how this country is going, what the philosophy is with regard to ownership and equity altogether.

Now, how do we even begin to repair that, given the suggestions that are being bandied about?

Mr. BOWSHER. I think you have to have markets and you have to have regulations that are concerned about the big players. And, of course, a lot of the small investors are involved with the big players today. There are pension funds and mutual funds, and in that, there are a good portion of a lot of small investors' assets. But you also have to have markets and regulations that protect the investor who has just come into a brokerage office and wants to make an investment.

And I think if you look back in the history of our country here, we've had periods where we've had safe and sound markets and people have felt confident in going into the market. In fact, it's one of the great things in the market that have been built.

But every once in awhile, we seem to let things get out of control, and the small investor gets hurt. And that's what happened on October 19, no question. Many small investors couldn't reach their broker. If they did reach their broker, they couldn't execute the order. And so a lot of people got hurt there. And that shouldn't happen.

At the same time, those were extraordinary days, and we've just got to pick ourselves up, I think. The Government regulators, the market people, the people running these exchanges and the private firms and come up with a system that does protect the small investor. And I think that Congress has to play its role of oversight to hold hearings like this and to find out what's happening and what improvements are being made.

Senator LUGAR. Just one last question, and this may be a technical rather than philosophical one, as volatility in markets as well as in public affairs becomes the rule rather than the exception, do you think each one of us psychologically will have to be prepared for huge swings in our lives almost every day? If so, should I suppose we have to accept that?

But that has not really historically been the case, and I simply wonder, you know, we have now the mechanisms available in these markets technically for huge swings. There are a lot of people that make money on huge swings. A sort of calm seas in this business doesn't really have the excitement for the big players. But, for the small persons, this degree of volatility is clearly an anathema, even if you could reach your broker. You know, even on days of a hundred point swing, it's pretty difficult for persons who really are thinking in terms of investments and about their savings and pensions privately as opposed to entrusting others, and hoping that somehow or another they are not disillusioned by that.

In your judgment, or in anything in the studies you've done thus far, can you give us any advice? Are we fated to have, by the nature of the markets that we now have, excessive volatility, or are there ways in which these oscillations can be decreased very substantially——

Mr. BOWSHER. Yes.

Senator LUGAR [continuing]. And a different atmosphere created?

Mr. BOWSHER. Yes. I think it's very important that we get on top of the technology that we've created. In other words, much of these fast moving events are happening today, because we've developed a great capacity in computers and communications systems and things like that. And these can all be very big pluses.

But if we don't have adequate regulation, if we don't have adequate controls, and that's why I worry a great deal when I hear the SEC saying that they don't feel that they need computer experts in the SEC, and they will rely upon an outside review—which I think is essential—by the New York Stock Exchange.

But I think you have to have some people on your team in the Government that understand what's happening in these markets when other people are changing how the markets really work because of computer technology and communications technology.

We also are going to these global markets. In other words, if we think we have fast moving markets today, think of what we're going to have in 5 or 10 years when we're dealing all over the world. We're doing it today, but the potential to deal around the world at tremendous speeds, moving money, moving orders, is absolutely tremendous technically speaking here in the next 5 or 10 years.

We have to have controls and contingency plans and regulations that are on top of this kind of situation and not just let the technology run away from us. I'm afraid to a certain extent that that's what we've let happen the last few years. Now is the period of time, and that's why we've got to get these people working together and we've got to have some good decisionmaking on how should it work, and when do we have to take time out, as you say.

Senator LUGAR. I agree with your sentiments, and I hope each of the agencies are at least prudent enough to have persons technically able. Clearly, we don't want to reinvent the wheel over here in Congress and hire a whole group of folks ourselves. But, at some point, we're going to find out how it works.

Mr. BOWSHER. That's exactly right.

Senator LUGAR. Either these folks can tell us or we'll dismiss their Working Group paper and try to get into the question of how we master the technology ourselves. When we finally get on top we'll wrestle it to the ground.

Mr. BOWSHER. I think we did the same thing in banking. In other words, we had banking regulators, the FDIC, the FSLIC, the Comptroller of the Currency. But I think there are audit techniques, and some ways they were doing things that didn't change. But banking sure changed, and it changed a great deal because of the computer and the communications capability.

In other words, again people changed the system without laws being changed, but I think the regulatory framework has got to have technical experts to get on top of this issue.

Senator LUGAR. Thank you very much.

The CHAIRMAN. Senator Daschle.

Senator DASCHLE. Thank you, Dick.

I would like to respond briefly to a comment that you made at the beginning of your remarks. It's certainly understandable given the frustration that so many small investors have with regard to the market, both Chicago and New York, as well as around the world. There is a sense of frustration about Congress' inaction.

I only think of all that's happened in the last 8 months. You've had the Brady Commission report, the Katzenbach report, the GAO report. Just since our last hearing in the subcommittee—we've had seven hearings in Senate Banking, Telecommunications, Finance, Energy and Commerce, so there's been a tremendous gathering of information and sort of an evolving appreciation of the complexity and the interrelationships of all this.

I think it would be a mistake for us to, in haste, respond to those frustrations without a very complete appreciation of the complexity and of the permanence with which we would like to see these changes made.

I think that's why the progress that I've seen has been more optimistic and far more substantive than most people might realize. We are coming to a much better appreciation of some of these things, and I think that's encouraging.

I would like to ask, initially, a question related to something you just said. It relates to a question I was about to ask before you said it, and that is your appreciation of this globalized network of trading, and with the relationship that our markets have with theirs, the opportunities that foreign markets appear to have at our expense when there are occasions, as there were last October, when we either halt trading or when we take some kind of action.

What, in your view, is the implication of all of this as we consider unilateral regulatory change?

On the first page of your testimony, you indicated that there is no disagreement about the fact that futures and equity markets are linked, and I would imagine you would also agree that the linkage goes beyond our shores.

I would be interested in your comments with regard to the implications of this unilateral regulatory change with the understanding of that international linkage.

Mr. BOWSHER. Yes. It's a very important question, Senator, and that is that we have achieved national markets here in this country. However, we have not linked them effectively, as well as we should, but they're linked and that's what we're really trying to do here, I think, in the next year or two is to try to achieve that.

At the same time, the globalization that's taking place. So we've got to be in contact with the people overseas and they're moving fast. Now, the one thing is one country will probably become the leader, and traditionally that's the United States in most issues. I think they would probably follow our lead in many areas if we can get our own house in good shape here.

But, at the same time, as we're doing that, we should be in contact, we should be talking to the major markets overseas to see how we can harmonize them. I think that's the word that the Brady people used, and I think it's a good word. I think maybe we used it in our January report. And that is you've got to get the markets linked properly in the major countries, and you've got to harmonize them so that, as this worldwide trading takes place on a 24-hour basis, you don't have breakdowns in the system that cause panic selling.

Now, I was talking to the German Ambassador the other day and some of his people are trying to understand it a little bit because we're going to start studying some of these markets overseas. And they have a unique thing. As he explained it to me, their stock markets are regulated by the states, and most everything else is regulated by the Feds, the Federal Government you might say.

Then we talked about Japan and then we talked about England. And pretty soon you realize that to harmonize these markets is going to be very, very tough. But if you think about the Central Banks right after World War II, the Central Banks didn't work together all that well. But we had a few crises in the sixties and the early seventies. And then we started getting organized, and our Central Banks are meeting regularly. And when crises do come up that involve the banking system, they're in touch with each other.

Having worked with Paul Volcker quite a bit on some of these tough situations, I know how they communicate together. I think it's been very effective. It hasn't prevented everything, but it certainly has prevented the big disaster. I think they've made a lot of progress.

I think our markets are going to have to do the same thing, and our regulators in the securities area over the next year or two. And so, as we're improving our own operations here in the States, and I think it's important to do it as fast as possible, because I think it gives us a better chance of being in that leadership role as we're dealing with overseas countries, but we've got to do it in a manner that can probably be harmonized with how they can change and how they can get their operations working.

Senator **Daschle**. I am concerned that the inevitability of our leadership position worldwide isn't quite as certain as you might have said it is. You look at what Japan has done in the banking industry, for example. You look at what the other markets are doing with regard to volume internationally, and I think we have to be very concerned about that.

And I would say that while harmonizing is important, competitiveness is also important. And I would be interested in your thought and any clarification in that regard.

Mr. **Bowsher**. Yes, I would like to clarify. If I gave the impression that I thought it was an agreed upon fact that the United States would be the leader, it isn't any more. You're absolutely right.

I think in all these areas other countries are much more inclined to think today maybe one of them or some combination of them might be the leader rather than just the United States.

But I do believe that, in many areas, if the United States moves out and can do it well themselves—and I think in this area we have a history of regulation, successful regulation. Over the years, it has probably been a little more successful than most other countries, and many of them, including Japan, have copied many of our things.

So I think if we get our house in order, we have a pretty good chance of us having a leadership role, but it's not assured. I agree with you 100 percent on that.

Senator **Daschle**. Mr. Bowsher, you answered a question posed to you by Senator Lugar relating to volatility. You said obviously that is going to be one major concern as we try to address this as far as confidence goes, the confidence of the small investors.

On page 3, you state that one of your greatest concerns as you've analyzed the market is the inability of intermarket agreement with regard to the setting of price limits. You say that while the futures markets have a fine large set price limits, that the SEC and the stock exchanges have not.

I would ask, first of all, whether or not you would agree that the rules change with regard to arbitrage after 50 points. It is not a setting of a limit as far as the stock exchange?

Mr. **Bowsher**. It's more of a setting of a limit on one feature of their operations which has a big impact on the futures and options markets out in Chicago and other places. So I think that it isn't quite the same but it has features of it.

But the concern is, was it done in a way that everybody could agree would help. And I'm not sure it was when that one was set.

Senator **Daschle**. Well, that's the impression I have.

Wouldn't you agree that it at least must be some recognition on the part of the stock exchanges that setting some limits on volatility is important?

Mr. **Bowsher**. I think I agree with that. I'll wait to see what they come up with.

Senator **Daschle**. So if there is agreement that some limits on volatility is important, it would seem also to me that, judging from the record, having the circuit breakers in place as we have, seemed to have worked much better in futures than not having them in the stock exchanges.

Does your analysis——

Mr. **Bowsher**. Well, and I think, as the Brady report points out, you've always had circuit breakers in the stock exchange. It has always been done more though on an ad hoc basis.

Senator **Daschle**. By a specialist.

Mr. **Bowsher**. Yes. Well, a specialist but also trading halts and not opening at certain times and things like that. But they have tended not to have, what you might say, agreed upon circuit breakers up front that the public is fully aware of.

I think that's one of the big issues that's being debated in this Working Group.

Senator **Daschle**. Did the GAO consider actually recommending that the agreement between the exchanges utilize circuit breakers as the means by which we——

Mr. **Bowsher**. No. I think our January report said that we thought that this was one of the issues that should be arrived at.

We did not come out with a flat recommendation.

Senator **Daschle**. But you agree that some kind of mechanism, like circuit breakers, is going to be essential?

Mr. **Bowsher**. I think that's right. And certainly we agree that some kind of a contingency plan which would probably include some form of circuit breakers would probably be needed.

Mr. **Fogel**. Senator, one of the things we did recommend in January though was that if they do it, they have to be done recognizing the effect that takes place in all the markets. We were very strong in stressing that. And the unilateral action by one market, or one regulator was not the best way to go.

Mr. BOWSHER. Yes, that was very important.

Senator DASCHLE. Again, as it relates to globalized competition, how do you see the utilization circuit breakers or anything like that with regard to its effect on market rise?

Mr. BOWSHER. Well, I think again you're going to have quite a debate. In other words, I think some of the markets abroad are willing to do that and think it's a good thing to do. I believe some markets, such as London, are very reluctant to do it. And so I think that's going to be quite a debate and quite an issue.

But that's the kind of thing you've got to do. You've got to get into the meeting room and you've got to really debate those issues and see if you can't come to some agreement.

Mr. FOGEL. And I think that's why we feel too that you might have to test some of these things for a period to see what effect they have, not only in our own markets but in terms of the relationship that then evolves between our markets and those overseas markets.

Some of these things we just don't know how the effect will take place yet.

Senator DASCHLE. Let me ask one last question.

Front running is the problem. The Brady report suggested it needed further investigation. GAO also stressed this view. And as far as I can tell, little has been done.

When a stockbroker uses his knowledge of a client's order to trade for his own account, front running occurs. Front running can be accurately tracked with the CTR computer system in Chicago, yet it is far less effective in New York.

With consumer confidence at a low, what has the New York Stock Exchange done to better track these trades?

Mr. BOWSHER. I'm not sure I have the answer for that. But what I do know is that the SEC is investigating this, in fact Mr. Gould told me it's on their agenda and they've assigned it, I believe he told me, to the SEC.

And so whenever they come out with their report on it, we'd be happy to look at it, and plan to look at it.

Senator DASCHLE. Would you submit to the committee for the committee's record any information that you would receive?

Mr. BOWSHER. Sure, at that time, yes.

The CHAIRMAN. Senator Bond.

Senator BOND. Thank you very much, Mr. Chairman. Thank you, Mr. Bowsher.

I found your comments very informative in these discussions. Since I also sit on the Banking Committee, I've had the pleasure of hearing a good bit of discussion of this. And I wanted to, first a couple of observations on the many astute comments that have been made.

I think that when we take a look at the front running, we can't just focus on New York, Chicago, Kansas City, but London, I believe, has been indicated as a likely area for much of the front running, and it is going to require international cooperation.

You raise the question in your testimony as to whether a cascade effect has taken place. And I gather from the urgency of your recommendations you would say that clearly it was not solely underlying market factors that brought the market down 509 points on October 19. Is that correct?

Mr. **Bowsher**. We said in our January report that we thought the main thing that had brought it down so dramatically was the big runup—and such a fast runup. Then we thought there were some secondary items like the budget deficit, the trade figures that came out, some of the tax legislation that was being considered that affected the mergers and acquisition of people on Wall Street.

So we were never quite sure what. But one of the great problems that happened is after you started with the big selling is that the market mechanisms started to fail. And as the chairman pointed out, I think at the beginning, the ability of the decisionmakers to get together was all done on an ad hoc basis and, at the same time, I give them high marks for working on those telephones and trying to do things on those 2 days. And I think what the Fed did, as far as pouring in that additional liquidity, was essential to keep us from having a meltdown.

But on balance we had a lot of people selling in panic on those 2 days. And that's what we would hope would have some changes here in the next few months that would avoid much of that in any future crisis.

Senator **Bond**. I think you've also helped us a great deal by pointing out that it is not just the interrelation of markets when this panic selling hits, it can hit in the equities market alone.

Mr. **Bowsher**. That's correct.

Senator **Bond**. And is it not fair to say that just cutting off the SuperDot system may make it more difficult for the smaller people to get in? But I understand that larger traders can get their preprinted tickets ready and with enough manpower can, actually on the equities market, do about the same thing. It takes them a little longer, but it gives them an advantage over the smaller traders who might have to rely on SuperDot.

Mr. **Bowsher**. That's right. I think the last time when that 50 point limit was reached, many people were surprised but it came about very quickly that we had backup systems developed, preprinted forms as you say. And so a lot of it was able to continue.

Senator **Bond**. One of the things that I think everybody is focusing on is the need for some kind of circuit breakers, and you were asked whether you recommend that.

I haven't heard of anything that sounds to me as a plausible alternative. Do you know of anything to deal with the volatility other than a temporary cutoff of the shutdown in the market for an hour or two?

Mr. **Bowsher**. Yes. I think everybody would like, if you could have perfect markets, perfect regulation, I mean you wouldn't have to have circuit breakers. In other words, it's much better to have your markets to continue to be open.

But I think I'm persuaded, as I've said here, that we've seen over the years that sometimes you have to take time out. Sometimes you have to find out what is really happening. And it's probably better to have a thought-out plan of a series of possible circuit breakers that you can effect and effect in an orderly fashion. And they've been used by the futures markets over the years and seems to have worked fairly well there.

I fully recognize that the stock markets and the equity markets are different, and that you're in competition with other markets around the world. But I would be surprised if this working group doesn't come up with some set of circuit breakers on May 18.

Mr. **Fogel**. Senator, one of the things though that we've really heard from everyone we talk to, and we feel on the circuit breakers, and this is what's important for the working group to come up with. There's some clear definitions of when you start up again. You can't just have a circuit breaker that's going to go on. You've got to have some strong leadership and some definition so that you know when it kicks in and when you start up again. And that's critical to the orderly functioning of the markets.

Senator **Bond**. Following up on your discussion of need for leadership, I personally think that one of the things that Congress is going to have to do is to give some—establish somebody for this coordination.

My personal opinion is that it ought to be headed by the Secretary of the Treasury as the one person who will have stature to go to London and say, you know, we have worked, we've cooperated among the exchanges, self-regulatory organizations, this is what we want to do, but we're not going to cut off our markets and let all the business run to you.

Is that——

Mr. **Bowsher**. I think you've hit on a very good point there, Senator. A lot of people haven't discussed it much, and that is that as we work to harmonize this regulation in dealing with overseas countries, one thing we have to face is that their Ministers of Finance or their Central Banks play quite a role.

And I know that our Fed has not rushed in, as I think Senator Lugar pointed out, and accepted the leadership role that Mr. Brady's task force suggested there. And some of the others are reluctant to see them do so.

But, in the final analysis, when we're dealing overseas with these other countries and the other markets and the other governments, we are going to have to face the fact that their equivalent of our Secretary of Treasury and our Chairman of the Fed does play quite a big role.

The **Chairman**. Does what?

Mr. **Bowsher**. Plays quite a big role in the regulation of their markets and banking systems.

And I think also when you bring in the whole Glass-Steagall issue, wherever we end up on that, also affects us.

Senator **Bond**. Final question just on macroeconomic subjects.

It's been over 6 months since the market dropped. Everybody is waiting for that to be reflected in the economy. It seems that our financial markets are disconnected from the overall economy.

Is that fair and, if so, why?

Mr. **Bowsher**. Well, I'm not sure they're disconnected, but I think we're very, very fortunate that our economy has been as strong and seems to be able to overcome what happened there on October 19 and 20 in the financial markets.

So I think we've been lucky and come through this period better than a lot of people would have expected.

Senator **Bond**. Thank you, sir.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

Incidentally, before I yield to Senator Conrad—Mr. Bowsher, you had spoken of the kind of studies to be done on program trading.

There is a report on program trading put together by Professor Sanford J. Grossman—"Report on Program Trading—An Analysis of Interday Relationships.[1] The report covers 9 months of observations of stock market volatility and program trading at the New York Stock Exchange.

One of Professor Grossman's conclusions was that, and I quote it, "I could find no relationship between any measure of volatility or any measure of program trading intensity. The days in which volatility was high were not, systematically, the days in which program trading intensity was high."

I will, without objection, include, Professor Grossman's report as part of the submitted material of this hearing record.

Senator Conrad.

Senator CONRAD. Thank you, Mr. Chairman.

I'm just going to ask one question in the interest of time, and that relates to loss limits.

One way of having a circuit breaker is to do what they do in the grain trade and have a loss limit for a day.

What would be the downside of having a mechanism like that for the overall exchange? Instead of having a remedy that would come into play with a certain critical set of circumstances, which might send the wrong message, how about a loss limit which would be understood beforehand by everyone and which would not send a signal of crisis that might further panic markets?

Mr. BOWSHER. Senator, I think that is one of the options of circuit breakers that the working group is considering. So I think it's one that should be considered.

So the downside side of it is again just the idea of having a circuit breaker and stopping your equity markets, there are some concerns about that. But I think what you're suggesting is one thing that should be considered as these groups meet and try to decide how to do it.

Senator CONRAD. I hear you saying that there's no special problem that attaches to loss limits, other than the general problem that relates to any circuit breaker system of interfering in the flow of a market.

Mr. BOWSHER. Yes, I think that would be our position. I would like to see what the market people themselves say, but I think this is where we are at this point.

Senator CONRAD. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator McConnell, did you have a question?

Senator MCCONNELL. Mr. Chairman, I've been sort of flitting in and out here so I don't think I will get into this other than just to follow up briefly on Senator Bond's question to you.

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[1] This report was prepared for Riker, Danzig, Scherer, Hyland, and Perretti in connection with Nicholas Katzenbach's study of program trading for the New York Stock Exchange. It can be found on p. 478.

Is it your view then that the activities of the markets are largely unconnected to the balance of the economy?

Mr. Bowsher. No.

Senator McConnell. Why do you think the crash had so little effect on the economy?

Mr. Bowsher. Well, I'm not sure, to be honest with you, Senator. But I truly believe that the market crisis hit at a time when our overall economy was maybe a little stronger than most economists thought. In other words, I think our exports, because of the current devaluation, was picking up in our manufacturing and even in some of our service industries on a stronger basis than what we thought last summer and last fall. And this seems to have continued.

I think also we have been very successful or lucky, and I don't know which, in keeping in balance what I think today is a very difficult balancing act, and that is all this currency transactions that are going around the world, your interest rates, your markets. I think the Secretary of Treasury and the Chairman of the Fed today, their job is five times tougher than it was prior to 1971. And we are truly in these world markets.

So, hopefully, we can keep things in balance and keep a strong economy going. I think it's worked out much better. But they are connected. There's no question they're connected. But, at the same time, the financial markets don't totally dominate your overall economy.

Senator McConnell. So your answer is we were just lucky?

Mr. Bowsher. Well, I think there might be a good element of that myself. I don't know. The timing lots of times is very key. I think that if we had had October 19 and 20 at a different period of time, where, let's say, our general economic activity was weaker, I think it could have had even a greater effect.

Senator McConnell. Was there any point after 1981 that would have——

Mr. Bowsher. If that had happened when we were in that recession there after 1981, I think we might have been in——

Senator McConnell. In the postrecession period, that's what, 6 years now.

Mr. Bowsher. Yes.

Senator McConnell. Early strong growth. We could have taken this 500 point hit at any point during that 5-year period in your opinion and recovered?

Mr. Bowsher. No, I wouldn't say that. I think there are so many factors that it's hard to make broad statements. I really do.

I worry a great deal about our banking system and what's happening in some parts of it. I think when you lose that much value that quickly, and you have to pour that much liquidity into your securities markets, as we had to do at that time, why I think we were very lucky and very fortunate that we didn't have more ramifications than what we did.

Senator McConnell. Mr. Chairman, other than asking that an opening statement be inserted at the beginning of the hearing, I'll conclude.[1]

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[1] See p. 211 for the prepared statement of Senator McConnell.

The **Chairman**. Thank you.

Without objection, it will be.

Mr. Bowsher and your colleagues, I appreciate very much your being here. I appreciate your response to my request for the report.

This is an extremely complicated area. Your reports have helped my understanding. I suspect that we're going to be talking with you and calling on you more as we go along.

I think we all share concerns about the uncertainty of the future in this area. We all want to take whatever steps are necessary to help. And I think we all tread very carefully, not wanting to take steps that hurt the situation rather than helping it. You've been very helpful, and I appreciate it very much.

Mr. **Bowsher**. Thank you very much, Mr. Chairman.

The **Chairman**. Next is a panel consisting of Richard Grasso, executive vice president of Capital Markets, New York Stock Exchange. I should note also for the record, Mr. Grasso, that you are president-elect of the New York Stock Exchange. I guess you are going to assume that post next month or the month after.

Mr. **Grasso**. June 2, Mr. Chairman.

The **Chairman**. Also Karsten Mahlmann, who is the Chairman of the Chicago Board of Trade, and we have John Sandner, who is the Chairman of the Chicago Mercantile Exchange.

Gentlemen, just come on up here, sit wherever you like, and I will let you work out the rules. I think what I will do is ask for the testimony of Mr. Grasso, then Mr. Mahlmann, and then Mr. Sandner. I am going to ask each one of you to speak, and then we will open it up to questions. I suspect that some of the questions of the Senators will be directed equally to each of the three of you.

So, Mr. Grasso, we will start with you, sir.

STATEMENT OF RICHARD A. GRASSO, EXECUTIVE VICE PRESIDENT, CAPITAL MARKETS, NEW YORK STOCK EXCHANGE, NEW YORK, NY

Mr. **Grasso**. Thank you, Mr. Chairman. Good morning, Mr. Chairman, and members of the committee.

On behalf of the New York Stock Exchange, I appreciate the opportunity to appear at this hearing. In the prepared testimony filed for the record by the NYSE we have outlined the events leading up to and surrounding the market break of October 19, 1987.

A number of studies have also been prepared by the Securities and Exchange Commission, the General Accounting Office, and the Presidential Task Force on Market Mechanisms, all of which provide a comprehensive analysis of last October's market crisis.

Accordingly, what I shall do in my remarks this morning is briefly touch upon some of the initiatives the NYSE has taken since the events of last October.

With that in mind, I will begin with the steps we have taken to improve the trading capacity of our electronic systems.

Specifically, we have increased the memory and processing capability of our Designated Order Turnaround System, otherwise known as SuperDot, to allow for more efficient handling of orders.

Additional enhancements to the DOT system are scheduled to be completed in July of this year. We have also completed a series of program changes in our limit order system, reducing the potential for the kinds of system bottlenecks that were discovered during the October market break.

A major upgrade of our limit order system with more efficient computers was finished last month. The result is a 40 percent increase in that system's capacity. On January 19, of this year, we opened a fourth trading room known as the expanded Blue Room.

Though the plans to add this additional facility were underway well before October 19, we now have 23 percent more trading floor space than we did before the market break.

More importantly than physical space, the new room has the effect of fanning demand over four locations instead of three, thus enhancing our systemic processing capabilities.

We have also increased the number of electronic display books on our trading floor by 70 percent, and have reduced the overall need for electromechanical card printers.

In addition, we have increased the number of stocks on display books by over 140 percent, so that currently, there are some 1,150 stocks on 367 display books. That compares with only 467 stocks on 215 display books prior to October 19.

These are just some of the improvements we have made in our systems to process increased trading volume. On a broader scale, the NYSE is planning to have the capacity to handle a peak 600-million-share day with minimal problems by June of this year, and by the end of 1988, to handle a 600-million-share day as routinely as we handle a 225 million share day.

In fact we believe that if we were to experience a 600-million-share day tomorrow, we would be able to process it with significantly fewer delays than we experienced last October.

In that regard we intend this coming Saturday to run data from the week of October 19 through the system to verify our enhancements, and have invited representatives from the SEC and the General Accounting Office to attend that test as observers.

We have also formed a pension managers advisory committee to help make the NYSE more aware of the investment needs of fund managers, and to help keep the fund managers better informed of the system's capabilities of the exchange now, and into the future.

That is not all. The NYSE is initiating an independent audit of our trading systems by an outside firm, every 12 to 18 months, to further ensure their proper operation. The audit mechanism should be in place by the end of this month. As the audits are conducted we are going to share the findings with the SEC.

Beyond this we are planning to have the capacity, by late 1989, to process our first billion share day. Recognizing that this will require a cooperative effort with the member-firm community, we have established an operations advisory committee to help synchronize efforts between the NYSE and member firms to achieve this goal.

Not all of the initiatives we have taken since October are related to systems capacity. A number have been in the regulatory area.

Specifically, we have reallocated seven stocks, involving six specialist units, and assigned those stocks to other specialist firms. These were instances where specialists failed to meet NYSE performance standards.

To help put that in perspective, 7 stocks were reallocated out of a total of some 1,600 listed on the exchange. There may of course be more disciplinary actions resulting from the week of October 19, and where appropriate, additional stocks will be reallocated.

We agree with the SEC's observation that reallocation of stocks is an effective tool in improving specialist performance, and we intend to do more of it in the future, when warranted.

Notwithstanding the small number of instances of nonperformance, we are proud of the performance of our specialists, and believe that their conduct during the October market decline, and their performance, was better than any other equity-dealer system across the country or around the world.

We also recognize that as our securities markets become increasingly integrated, and as volume, volatility, and risk increase, pressure on the specialist system could intensify. So on the 7th of this month, the NYSE's board of directors approved, as an interim measure, an increase in specialist capital from a minimum amount of $100,000 to a minimum amount of $1 million.

It also approved, as an alternative measure, a threefold increase in the trading unit position requirements that specialist must be able to assume. Specifically, the previous 5,000-share position requirement for common stocks has been increased to 15,000 shares.

Another initiative that we have taken in the regulatory area is the 50-point collar. In early February, we adopted a procedure and proposed a rule to the SEC to allow us to take index arbitrage out of the DOT system whenever the Dow-Jones industrial average moves up or down 50 points from the prior day's close. That rule was approved by the SEC last Wednesday.

Since its adoption in February, there have only been two instances where we have applied the collar, by removing index arbitrage from our systems. One was in an up market, the other in a down market.

Though we need more experience with the 50-point collar to determine whether it is achieving its objective, we believe it has been a very positive step in the right direction.

Let me point out that beginning May 2, we are requesting our member firms to supply us with information on their program-trading activity on a daily basis. We are also currently implementing a procedure to enable us to identify all types of trading coming through our systems, including index arbitrage.

In the longer term, we will be proposing rules that will require, for regulatory purposes, that firms maintain a back-end process to identify beneficial owners, in order to assist the exchange in its oversight and self-regulatory responsibilities.

I want to emphasize the long-term nature of implementing such rules, given the logistical considerations involved in such an undertaking.

The third area I would like to touch upon has to do with some of the initiatives we have taken on an intermarket level. Because of perceived problems of intermarket front-running, we plan to prohibit trading futures based on knowledge of impending stock buys.

We sent an information memo to our member firms on April 13 of this month, soliciting their views on this issue. We will soon send a letter to our members saying that in a market, front-running violates just and equitable principles of trade, and as such, is a violation of our trading rules.

To help enhance this ruling, we plan to provide the futures exchanges with audit trail information on stock trading that would enable the Chicago Futures Markets to conduct ongoing surveillance for front-running.

All of this of course is dependent upon approval by the SEC. Among other initiatives that we are pursuing on an intermarket basis are the following: On January 11 of this year, the heads of several SRO's met at the exchange to discuss a variety of methods to improve communication and coordination between our respective markets in the event of a crisis situation.

Similar meetings involving all the equities, and futures, and options exchanges were held on February 24 and March 24.

Another meeting of operations people from the different exchanges is scheduled to take place in San Francisco on May 3.

Some of the issues under discussion, in addition to the recently established "hot line" between SRO's include the establishing of an intermarket public address system, developing a directory of key member firm personnel for emergency notification, and disseminating consolidated quote system information to the futures and options markets.

Also under discussion with the SEC, CFTC, and the CME, among others, is a proposal that could provide for a coordinated all-market circuit breaker in the event of a precipitous market decline.

Such a circuit breaker could take the form of a trading halt across all markets. Exactly how much of a market decline should trigger it, and how long it should last, are questions that still need to be answered.

What is clear, however, is that while such a circuit breaker could help cool down a superheated market, it is not a panacea that is going to solve the overall problem of volatility.

Rather, as markets become overextended, whether up or down, there will always be corrections. What an across-the-market circuit breaker could do in the event of a significant market decline is give each market time to examine itself, as well as giving investors a chance to better understand what is happening.

It is important to point out that there is not an unqualified consensus in favor of a trading halt across all markets. What we at the NYSE have tried to do is put the issue out on the table, and generate as much discussion as possible, so that in the end, we will all take a course of action that is best for everyone.

These, then, are some of the initiatives we have taken and are considering taking in the wake of October 19. In this regard, Mr. Chairman, the NYSE is pleased to have been invited by you to comment on your proposed Intermarket Monitoring Council Act. We support the objectives of your proposal—specifically, to promote greater cooperation, coordination, and information sharing among the Treasury, Federal Reserve Board, CFTC, and the SEC.

As John Phelan indicated in his letter to you on March 25, 1988, on this subject, he believes it is essential that the regulatory agencies constantly look at the changes affecting the financial marketplace, both domestically and internationally. And that the only question in his mind is whether legislation is needed to accomplish that goal.

Over the next few months the different agencies have indicated their intention to meet and discuss these issues. If this does indeed occur, and if the meetings are successful, it would appear that legislation is unnecessary. But if the results are not forthcoming, then legislation would be appropriate and we would support it.

Underlying the initiatives and recommendations I have discussed, as well as the others included in our testimony for the record, is the view that we need to understand, as best we can, the course that our securities markets are following.

For only then can we build an effective framework that fits the future direction of the market, meets the requirements of the investing public, and serves the best interests of our country.

This is not something that we at the NYSE can achieve by ourselves. Rather, it will take a joint effort by the Congress, this committee, the CFTC, the SEC, the futures and options exchanges, and all other interested parties.

It is a goal that I am certain we all share, and one that I know we will all work together to achieve. Thank you.

[The prepared statement, letter from Senator Leahy, questions, and responses of Mr. Grasso, and followup letter from Senator Leahy follow:]

TESTIMONY SUBMITTED FOR THE RECORD BY
RICHARD A. GRASSO

EXECUTIVE VICE PRESIDENT, CAPITAL MARKETS
NEW YORK STOCK EXCHANGE

BEFORE
THE U.S. SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY

APRIL 27, 1988

WASHINGTON, D.C.

Mr. Chairman, members of the Committee:

On behalf of the New York Stock Exchange, I appreciate the opportunity to appear at this hearing.

My purpose today is to give you the perspective of the New York Stock Exchange regarding the events leading up to and including the week of October 19th, 1987. And then discuss some of the initiatives the NYSE has taken since then.

Finally, I'd like to share our thoughts about where our equities markets are headed, in which direction we think they should be going, and how we think we should be preparing for the accelerating level of change in our markets, both domestically and internationally.

But before I do all that, I want to provide a basis for my comments by giving you a brief background of the New York Stock Exchange.

The New York Stock Exchange has a varied and broad-based constituency, consisting of 650 member firms...1,600 listed companies...13,000 institutional investors...and more than 125,000 registered representatives.

The NYSE has some 2,000 employees of its own. Another 1,200 people are employed by SIAC -- The Securities Industry Automation Corporation. SIAC is a jointly owned subsidiary of the New York and American stock exchanges, and provides automation, data processing and communications services for both exchanges.

The NYSE serves the 47 million Americans who own stock in corporations directly. I think it's significant that almost half of them own only stocks that are listed on the New York Stock Exchange.

We also provide a market for the 140 million people who own stock indirectly---as members of pension funds, for example.

All of these shareholders have a common interest in preserving a fair and orderly equities market. We provide that kind of market. It is broad-based, efficient and liquid, and we like to think it is the best market in addition to being the biggest.

Working with and on behalf of our multiple constituencies, the function of the NYSE is three-fold:

The first is to maintain an open, liquid and dependable marketplace for issuing and trading securities, thereby enabling companies to raise the capital they need.

The second function is to provide investors, both individual and institutional, with a market where they can invest in equities.

Our third basic purpose is to provide a market for professional speculation, while at the same time providing effective self-regulation and oversight so that the marketplace retains its integrity.

Given that brief profile of who we are and what we do, let's first take a look at the week of October 19th and what it meant for the Exchange.

What happened is that a growing conviction among investors in the markets -- a conviction that the market was overvalued -- erupted into action on October 19th.

Action so swift and full of force that it amounted to a financial hurricane.

In retrospect, we can look back and see the clouds that gathered, in the days preceding October 19th, to create that financial hurricane.

There was troubling news about interest rates and a proposed tax bill, fear of renewed inflation, concern over budget and trade imbalances and silkworm missiles flying in the Persian Gulf, to name just a few.

All these events merged with a general investor perception that the five-year bull market had run out of steam, that a market correction was looming. And on October 19th the hurricane struck with full force.

The word "hurricane" is appropriate.

On October 19th, the NYSE volume was 604 million shares -- more than three times our average daily volume for the year.

The next day it was 608 million shares.

Total volume for October 19th through the 23rd was 2.3 billion shares -- as much business in five days as we did in the entire year of 1967.

That's what happened generally -- a long-camera view.

Now let's pull the camera in closer and ask what happened specifically -- inside the hurricane.

Picture the market as a skyscraper in the midst of that hurricane. What happened is this:

The building stood. The lights flickered but stayed on. The plumbing sprung a few leaks but in general worked. With the winds raging at 150 miles an hour, the institution felt the storm but functioned.

Of course we had problems. But the problems were at the margin, affecting only about 10 percent of our business.

In other words, we kept the New York Stock Exchange open and operating.

From January to September 1987, the average number of trades each day was 87,000. In contrast, on October 19th and 20th, there were more than 200,000 trades per day.

In terms of orders, the average number of systems orders received from January to September 1987 was just under 144,000, or 6.1 orders per second. On October 19th, we received 470,000 orders, or 20.1 orders per second. And on October 20th, those numbers were 585,000 orders received at a rate of 25 orders per second, or four times our previous daily average.

In 1987, program trading orders in our Designated Order Turnaround System, known as SuperDot, averaged about 15,000 per day between January and September. On October 19th, over 61,000 orders were received on the NYSE trading floor through SuperDot. That's four times the usual number of program orders.

Let me add at this point that we are implementing a procedure that will enable us to accurately identify all types of trading, including program trading. In the longer term, we will be proposing rules that will require, for regulatory purposes, that firms maintain a back end process to identify beneficial owners. This will assist the Exchange in performing its oversight and self-regulatory responsibilities.

I want to emphasize the long-term nature of implementing such rules for identifying beneficial owners. That's because of the enormous amount of computer program changes that will have to be made by the firms themselves and the need to coordinate any new rules of this kind with other self-regulatory organizations, clearing and depository institutions and other relevant security industry participants.

Here are some more figures specifically related to our capacity planning process.

Prior to October 19th, our planned peak in volume -- otherwise known as the theoretical limit -- for the NYSE and our member firms was between 420 million and 450 million shares, or more than two and one-half times our average daily volume up to that period. And even at that, there was plenty of skepticism within the industry that we would ever experience a 450 million share day -- much less a 600 million share day -- before 1990.

Yet, despite that skepticism, we developed a five-year plan to increase processing capability to handle peak loads of 450 million shares in 1987, and 600 million shares in 1990. Moreover, after we hit a then record volume of 303 million shares on January 23rd, 1987, we went back and took an even closer look at our systems, and invested several million dollars more to accelerate improvements in our capacity.

These are a great many figures. But they're important because we believe they demonstrate that in light of the kind of market activity we had seen prior to October 19th, our planning process was reasonable and responsible.

I want to underscore, too, that even though our volume projections did fall short of the 600 million share days we actually experienced, it was the elasticity of processing capability embedded in our planning that enabled us to handle last October's volume. That elasticity of processing capability -- combined with emergency measures we instituted during the week of October 19th -- got us through a storm of unpredictable proportions.

Some of those emergency measures are part of our basic contingency plan.

For example:

Our fundamental premise during any kind of emergency is that we do everything possible to keep the Exchange open and functioning. That was the premise we operated on when October's financial storm hit.

We also allowed the dealer system additional time to open securities and provide for trading halts and indications of interest where there were large imbalances in either buying or selling interest.

We opened our electronic order delivery systems beginning on October 19th at 7:30 a.m. rather than 8:30 a.m.

And we maintained communications liaison with the Securities and Exchange Commission.

As I said, all these steps are part of our basic emergency operating procedures.

What we did in October was to expand on these measures by setting up additional communications links with the White House, Congress, the Federal Reserve, the Treasury Department, member firms, regional exchanges, NYSE board members and key industry executives.

On October 20th, we also freed-up our system's capacity for public and institutional investors by requesting that our member firms refrain from using our automated order delivery system for entry of program trading orders -- specifically those program trading orders having to do with index arbitrage. And that they refrain from doing that kind of trading for their own account.

From previous examinations that we had done, we knew index arbitrage trading utilized some 15 percent of our capacity.

By eliminating it from our systems, we were able to make that capacity available to public and institutional investors.

As a result of our efforts, to quote Robert Glauber, executive director of the Presidential Task Force on Market Mechanisms, in a January 18, 1988 interview in Barron's, "The Big Board held together." And as Mr. Glauber went on to point out in that interview, the NYSE did so despite the fact that we weren't configured to handle anything like the volume we actually experienced.

In a January 15, 1988 letter to the NYSE from Benjamin F. Edwards the 3rd, chairman of A.G. Edwards and Sons, Inc., a member firm whose business primarily is retail, Mr. Edwards stated that "Overall, (his) customers were able to obtain executions for record numbers of orders through the facilities of the NYSE." And that A.G. Edwards "believes the great majority of (its) clients, who were investors, felt that they were reasonably served under extremely difficult conditions."

It should also be noted that in a survey of 302 institutional investors -- representing almost one trillion dollars in assets -- and 294 individual shareowners taken by the Exchange after October's market break, both groups were asked to compare the NYSE's performance with that of a wide range of institutions, including the London and Tokyo Stock Exchanges.

Both institutional ~~and~~ individual investors alike rated the NYSE's performance second only to that of the Federal Reserve.

We are proud of these findings. But, as I said earlier, we did have some problems. By that I mean that in addition to delays that took place at our member firms, the NYSE experienced delays in our delivery and reporting mechanism for market and limit orders.

While those delays taken on an individual basis were significant, they were minor when viewed in relation to the total system traffic that we experienced.

Regarding the delays, by October 20th -- when we hit 608 million shares -- our systems showed improvement. And by the 21st, even though we still were experiencing extraordinarily high volume, our systems showed significant improvement.

In short, in a period of only 48 hours, we adjusted to volume levels that were more than three times our daily average. As I've already suggested, I believe that no other system in the world can make that kind of claim.

To put it another way, the events of October 19th should not be taken out of context. The conditions we faced were extraordinary in the extreme. It's true we had difficulties. But it's also true that our achievement was unsurpassed.

As a result of the October market break, there was a lot of attention focused on the issue of comparison and settlement.

Following the execution of a trade, brokers for both the buyers and sellers submit the details of the trade -- such as price and number of shares -- for comparison and settlement.

It is important to note that the NYSE is able to tell any customer who questions a trade whether or not there was a delay in the stock at the time the order was placed, and if there was a delay, at what price range the customer can expect the trade to have been executed.

It is also important to note that uncompared trades involve settlements between brokers and not public customers. And that all confirmed public transactions were cleared and settled within the normal 5-day settlement cycle.

Following the market break, a lot of concern also has been expressed that as volume continues to grow and the use of index arbitrage increases, professional trading may at times crowd out public trading -- whether it be individual or institutional.

While that did not happen during the week of October 19th, it is a complex problem that needs to be closely examined.

The NYSE has never before discriminated between one kind of order and another, but to the extent that there is a potential for such crowding out, we are considering all the options available to us to deal with the issue.

SPECIALIST SYSTEM

Much of what I've discussed so far involves electronic systems. But our systems are more than just electronic.

One of the important human elements is the specialist.

The fact is, during the market break of October 1987, the specialist system performed better than any other equity dealer system across the country or around the world.

Indeed, Nicholas Brady, Chairman of the Presidential Task Force on Market Mechanisms, in a January 12th, 1988 interview in the New York Times said of the specialist system -- in much the same way that Churchill said of democracy -- that while it's not the best system, "it's the best we've invented."

Also, the SEC in its report on the market break stated that: "Although there were some instances of questionable individual performance...specialists as a whole met their market making obligations."

In our view, that's saying a great deal in favor of the specialist system, especially when it's said by people charged with investigating the market break.

Our evaluation of the performance of our specialists did surface some cases where Exchange standards were not met.

The Exchange has already reallocated the stocks of J.P. Morgan & Co., Gould, Inc., Neiman-Marcus Group, E. F. Hutton Group, Inc., A. G. Edwards, Inc., Carter-Wallace, Inc. and Pansophic Systems, Inc., assigning them to other specialist units.

To help put that in perspective, that's seven stocks that were reallocated out of a total of 1,600 listed on the Exchange .

There may, of course, be more disciplinary actions resulting from the week of October 19th, and when appropriate, additional stocks will be reallocated. For we agree with the Securities and Exchange Commission that reallocation of stock is an effective tool in improving specialist performance, and we intend to do more of it in the future.

Nevertheless, overall the NYSE specialist system performed the way it is intended to perform. And we believe the reason it did so is because our specialists have an assigned responsibility.

How well NYSE specialists fulfill their assigned responsibility is determined by evaluating their performance against a particular set of standards. Indeed, the NYSE is the only market with specific standards for judging specialist performance.

These standards have been in place for many years. They have been reviewed and approved by the Exchange board of directors as well as filed with and approved by the Securities and Exchange Commission (SEC). Moreover, the Exchange annually discloses the performance of the specialist system based on these standards.

What are some of those standards, and how did NYSE specialists perform in the face of the financial storm that hit the market in October?

One is the specialist participation rate.

The specialist participation rate measures the number of shares a specialist buys and sells as a dealer for each stock assigned to him, and expresses that participation rate as a percentage of total shares bought and sold.

On October 16th, 19th and 20th, the specialist participation rate for all specialists was 13.1 percent, 17.5 percent and 18.1 percent, respectively, compared to 11.7 percent for the first nine months of 1987.

What this shows is that specialists' purchases and sales for their own account during October 19th and 20th increased substantially at a time when market volume was more than three times the previous daily average.

Another measure is the stabilization rate.

The stabilization rate measures the percentage of purchases and sales made against the trend in the market by a specialist in each of the stocks assigned to him. The higher the percentage, the better.

The specialists' stabilization rate for all stocks on October 16th, 19th and 20th was 91 percent, 94 percent and 94 percent, respectively.

In comparison, the stabilization rate was 90 percent during the first nine months of 1987, clearly indicating that on all three October dates, the specialists' dealings against the trend of the market were consistently better than the average experience for the period leading up to the market break.

A third standard is quotation spread.

The quotation spread is the difference between the price at which a stock is bid and the price at which it is offered. The narrower the spread, the better.

While the quotation spread widened somewhat as would be expected during the period under review, principally with one-eighth point spreads declining and one-half point spreads increasing, compared to performance during the previous September, trade-to-trade variations -- otherwise known as continuity -- compared favorably.

Continuity reflects the change in price from one trade to the next. The more liquid a stock is the more it trades at minimal price variations.

For October 16th, 19th and 20th, there was no change in price between one sale and the next 57 percent, 50.6 percent and 46.4 percent of the time, respectively, compared to 57.9 percent of the time for the preceding month of September.

There was one-eighth of a point change in price between one sale and the next 29.4 percent, 22.6 percent and 20.5 percent, respectively, compared to 32.8 percent of the time for the month of September, clearly indicating a liquid market for the period under review.

And finally, there's the standard known as market depth.

Market depth extends the concept of continuity to a sequence of trades, reflecting actual change in price on each 1,000 shares of volume. The more volume that occurs at no change or at a small variation, the better the depth of the market.

Examining the standard of market depth, the figures compare favorably with the continuity figures, with no change in price variation per 1,000 shares of volume 52.9 percent, 47.2 percent and 42.4 percent of the time on October 16th, 19th and 20th, respectively, compared to 52.9 percent of the time for the entire month of September.

What all this suggests is that when evaluated against well-established, proven measures of specialist performance, NYSE specialists did a commendable job in the midst of extremely volatile market conditions never before experienced.

That, too, was the conclusion of Peter T. Buchanan, President and Chief Executive Officer of the First Boston Corporation, a major member firm, who in a letter to the NYSE, dated January 29, 1988, wrote that "the specialist community did a commendable job in extraordinary circumstances...."

It is interesting to note at this point, that following the events of October 1987, the National Association of Securities Dealers is beginning to institute standards for dealer activity similar to those we've had in place for years.

In examining specialist performance for the period under review, the issue of capital adequacy of specialists has been raised.

The Brady Task Force itself stated in its report that "no realistic amount of capital could have stemmed the tide of the October break...."

We agree with that conclusion.

Additional capital during the October market break would only have led to more selling at prices above equilibrium.

The fact is that the specialist is not the buyer of last resort. Rather, the specialist is there to help make sure whichever way the market moves, it does so in an orderly fashion depending on market conditions. And no amount of capital would have enabled NYSE specialists to do more during the week of October 19th.

Nor should we have expected them to do more.

Dealers are not required, nor should they be required, to stand in front of a roaring financial "locomotive." To demand that they do so clearly would jeopardize the existence of the dealer system. And that would serve neither the interests of the dealers themselves nor the interests of the investing public who rely on a continuous auction market.

Moreover, while we agree with the Brady Task Force's conclusion regarding specialist capital during the week of October 19th, we disagree with the Task Force's use of net buying and net selling activity over half-hour intervals as a standard for measuring specialist performance.

No equities market system anywhere judges dealer performance by such a standard. Quite simply, it ignores the minute-to-minute shifts of supply and demand, and obscures the extent of a dealer's contribution to market continuity and depth.

In our judgment, it's absolutely necessary that a dealer be allowed to reliquify at all times during the day. So rather than net buying and selling, the important measure is the number of times a dealer moves in and out of the market. When judged against those criteria, the specialist system performed extremely well under very difficult circumstances.

Taking a longer term view beyond the specific events of October 19th, the conclusion is equally as clear that as we move toward one market and volume, volatility and risk increase, pressure on the specialist system will intensify.

That means that over time, we must strengthen the specialist system.

NYSE INITIATIVES TO REINFORCE THE SPECIALIST SYSTEM

The way to reinforce the specialist systems is by:

> Reallocating stocks in cases where specialists fail to meet Exchange standards;
>
> Enhancing the buying power of specialists by improving their ability to borrow money; and
>
> Increasing the amount of capital in the system.

As I indicated earlier, we've already reallocated seven stocks, and will reallocate more when necessary.

Along these same lines, the NYSE Board of Directors on the 7th of this month approved a proposal refining and improving our system for initially allocating stocks.

The Board also approved as an interim measure that the minimum dollar amount for specialists' capital be increased to $1 million from $100,000, and that the alternative measure based upon the trading unit position requirements which specialists must be able to assume be increased to three times their current levels. For example, the current 5,000 share position requirement for common stock has been increased to 15,000 shares.

In addition, last October, the NYSE proposed a change in its rule 98 to allow large diversified member firms to become associated with Exchange specialist units.

The entry of diversified firms into the specialist business could increase the capital available to specialists for marketmaking. That, in turn, could improve their ability to continue to make deep, liquid markets in an environment where overall volume and average trade size are increasing dramatically.

Finally, in the area of specialist performance, the development of additional specialist performance standards utilizing objective measures currently is being undertaken by the Exchange.

We have previously filed with the Securities and Exchange Commission a new job description of expected performance as well as a greatly expanded program under Exchange rule 103A. If approved, it will implement specific objective standards in the areas of specialists' DOT order handling and reporting, timely opening of securities, handling of administrative message traffic and others.

NYSE INITIATIVES TO INCREASE TRADING CAPACITY

One of the reasons we were able to weather the storm that struck on October 19th is the fact that we regularly reviewed our systems and planning models. And wherever possible, accelerated implementation of our overall capacity expansion.

Since October 19th, we've taken a number of additional initiatives designed to increase our trading capacity.

The following steps that we've taken relate directly to a number of specific points raised about our automated stock trading systems in the General Accounting Office's preliminary report on the market break.

Specifically:

In November 1987, our DOT System's memory was increased and several of the system's data files were separated to allow more efficient processing. Further system enhancements are scheduled to be completed by July 1988 to improve DOT's processing capability even more.

In January 1988, program changes were completed in our Limit Order System to reduce system bottlenecks discovered during the October market break. A major upgrade of the system with more efficient computers was completed in March 1988, resulting in a 40 percent increase in capacity.

We had begun to completely replace our Automated Pricing and Reporting System prior to October 1987, but only a small fraction of the new system was operational by the week of the 19th. An entirely new system was completed on February 22, 1988.

The ability of the our Universal Floor Device Controller to store and process data has been increased. To add additional capacity, major portions of data normally routed through the Universal Floor Device Controller are being re-routed to other systems, a process that will be completed by the end of June 1988.

A problem associated with the Universal Floor Device Controller during the week of October 19th was a backlog of orders directed to printers on the trading floor. On January 19, 1988, we opened our expanded Blue Room, adding 30 more printers for an increase of 20 percent. Seventeen more high speed printers were added to our trading floor in March 1988. In addition, we currently are working to double the speed of all existing printers.

At the same time, we also have increased the number of electronic display books on the trading floor by 70 percent, reducing the overall need for printers. In addition, we have increased the number of stocks on display books by over 140 percent since October 19th, so that currently there are approximately 1,150 stocks on 367 display books.

The capacity of our Post Support System to store and process orders has been increased through the use of additional computer power for the system.

Enhancements in our Universal Floor Device Controller and its printers that currently are underway will reduce the potential for delays in the Exchange's link with the Intermarket Trading System.

As of November 1987, the computers running the Consolidated Tape System have been replaced. As a result, the Consolidated Tape System now has the capacity to efficiently process a peak volume in excess of 600 million shares.

In addition, computer enhancements were made to the As-Of-Status-System on October 24th and 25th, 1987.

On a broader scale, the Exchange is planning to have the capacity to handle a peak of 600 million shares by June of this year, and we believe that if we were to experience a 600-million-share day now, we would be able to process it with significantly fewer delays than we experienced last October. We intend on April 30th to run data from the week of October 19th through our system to verify our capabilities, and have invited the SEC and GAO to attend as observers.

Beyond this, we are planning to have the capacity by late 1989 to process a billion shares. In setting that goal, we recognize that the Exchange is only one component of an overall trading network. And that all components need to work together if that goal is to be achieved.

Accordingly, the NYSE recently formed an Operations Advisory Committee, headed by NYSE President Robert Birnbaum and made up of experts in trading operations from member firms of various sizes. The purpose of the committee is to evaluate problems encountered during peak processing periods and to recommend synchronized corrective actions that would enhance the entire process.

In addition, last month we established a Pension Managers Advisory Committee to help make the NYSE more aware of the investment needs of fund managers and help keep the fund managers better informed of the system capabilities of the Exchange now and in the future.

And last January, the NYSE formed an Individual Investor Advisory Committee to serve as a liaison between individual shareholders and the NYSE board to enhance communications between individual investors and the Exchange. Its charter is to advise the Board on policies and programs that affect individual investors in equities, options, futures and fixed income securities.

RELATIONSHIP BETWEEN EQUITIES AND DERIVATIVE PRODUCTS MARKETS

Much of the discussion over the events of October 19th has to do with the relationship between the equity markets and the futures and options markets -- otherwise known as the derivative products markets. This relationship, in which activity in one market can influence events in another market, must be looked at more closely.

The SEC, the Brady Task Force and the GAO have all concluded that the equity, futures and options markets are linked and should be treated as a single market for equity and equity related products. Whether or not we are one market now, it appears that we're headed toward one market. So we must plan for that time in the future when indeed we may be one market.

What this means is that we need to begin to focus more on the interface between the equities and derivative products markets. One, to enable us to better understand how these two markets are coming together.

And two, to permit each of us to become more aware of how we can better adjust to the consequences of the evolving integration of our securities markets.

Part of the basic problem is that as the derivative product markets are used to shed risk, there's an inadequate appreciation, even among the most sophisticated investors, that risk cannot be taken out of the system. Risk remains in the system and a substantial portion of it reverberates back to the original market.

Index arbitrage is a prime example.

Unlike traditional arbitrage, index arbitrage does not deal in price discrepancies between equivalent items. Instead, it depends on the yield spread between an index futures contract and its underlying securities.

Its potential returns are enormous, and it is engaged in regularly by a small number of institutions and approximately a dozen of our own member firms.

In contrast, the public at-large, the investing public, a great many of our listed companies and the vast majority of our member firms have the perception that index arbitrage -- which often is referred to generically as program trading -- intensifies market volatility to the detriment of the marketplace as a whole.

Indeed, as of mid-April 1988, we've received approximately 1,750 letters from the public at-large expressing opposition to program trading. Of that number, some 270 letters were from member firms. There's also been a number of advertisements by Advest, Merrill Lynch and Shearson Lehman Brothers highly critical of program trading. These firms have substantial retail and institutional divisions and the opinions expressed in those ads no doubt reflect the views of their retail and institutional customers.

While the term program trading includes a variety of sophisticated trading strategies, we interpret the opinions that we've received regarding program trading to refer specifically to index arbitrage.

NYSE ACTIONS AND RECOMMENDATIONS

Accordingly, the immediate question before the Exchange is how to improve upon the free flow of information and funds between the equities and derivative products markets, enhance trading between these markets in order to improve efficiency and liquidity, and do so in a way that deals with the professional and public perception that index arbitrage makes the markets more volatile.

One way we are attempting to address this question is by controlling the amount of risk rebounding back into our market as a result of buying or selling in the futures market, thereby trying to level off one component of volatility.

In early February, we adopted a procedure and proposed a rule to the SEC to take index arbitrage out of our systems whenever the Dow Jones Industrial Average moves 50 points up or down from the previous day's close. The rule was approved by the SEC last Wednesday.

Since its adoption in February by the NYSE, there have only been two times when we applied the 50 point "collar" removing index arbitrage from our systems -- one in an up and the other in a down market. While we need more experience with the 50 point "collar" to determine whether or not it's achieving its objective, most market participants -- including the public, listed companies and our member firms -- share our view that it has been a very positive step in the right direction.

Because of perceived problems of intermarket front-running -- or the trading of futures contracts in order to profit on knowledge of impending orders in the stock market -- we also plan to prohibit trading futures based on knowledge of impending stock buys.

Specifically, we will soon send a letter to our members saying that intermarket front-running violates just and equitable principles of trade, and is a violation of our trading rules.

And to help enhance this ruling, we plan to provide the futures exchanges with audit-trail information on stock trading that would enable the Chicago futures markets to conduct ongoing surveillance for front-running. This, of course, depends on approval by the SEC.

All this underscores the point that if indeed we are moving toward one market, we must ensure that the transition is properly managed.

Accordingly, we have been discussing the issue with the SEC, CFTC and CME, among others, and are working toward a proposal that could provide for a coordinated all-market circuit-breaker in the event of a precipitous market decline. We are hopeful that agreement on this issue can be reached in the near future.

A more important problem than the public perception problem of index arbitrage has to do with program trading related to the selling of baskets of stocks, either independently or in conjunction with futures.

As pointed out in the SEC's study on the October market break, wave upon wave of basket selling by institutions at times can cause a great deal of illiquidity in the market.

How we handle that illiquidity and what we do if a great number of institutions start to do this kind of activity is really a more serious issue than index arbitrage. For it really addresses the sudden need for liquidity, both in the futures market and the equity market.

This problem alone could at some time in the future lead to a repeat of last October, and is one for which we have no ready answer.

One would think that the institutions themselves need to better understand that there is no instant liquidity in times of severe stress. And that we need to strengthen the dealer system, which -- as I've indicated earlier -- we are in the process of doing. Let me add that reinforcing the dealer system could also include easy access by specialists into the options and futures markets to allow them to hedge their positions when they come under stress.

I want to say at this point that we have neither the authority nor the inclination to ban program trading of any kind. We believe that product and technology innovation is beneficial and essential.

At the same time, we also believe change in our markets should be evolutionary, not revolutionary. And that just because we have the technology to do something doesn't mean we should do it without regard to its impact on the marketplace and its participants.

Accordingly, we would like to see developed a financial version of an environmental impact statement that can provide guidance, or even an early warning, regarding the potential consequences of new financial instruments, new trading technologies and new forms of risk management.

One way to proceed might be to require all member firms to provide an annual or semi-annual report to the NYSE on the potential financial and operational impact of new and current investment vehicles on both the firms and the Exchange.

The reason is that the risks of some products have outpaced the ability of the system to handle them. That clearly was the case with portfolio insurance and basket selling during the week of October 19th.

Better communication between equity and futures and options markets is a critical factor, as well.

In this regard, on January 11th, the heads of several SRO's met at the NYSE to discuss a variety of methods to improve communications. Similar meetings involving all equities and futures and options exchanges were also held on February 24th and March 24th. Another meeting of operations people from the different exchanges is scheduled to take place in San Francisco on May 3rd.

We also recognize the need for more effective communication regarding system delays -- originating both in the marketplace and the brokerage community, and are continuously working with member firms to achieve that goal.

In addition, the NYSE is supporting a proposal to include the commodities markets dealing in index futures as associate members of the Intermarket Surveillance Group (ISG), which helps facilitate regulatory responsibilities between different markets.

And the NYSE is heading up a sub-group of the ISG to better identify intermarket trading violations and promote information sharing.

On April 5th, there was a meeting of all the members of the ISG. The commodities markets dealing in index futures attended that meeting, and the CFTC participated as an observer.

This kind of cooperative approach could give each market a better opportunity to keep the other informed about what's going on in its own marketplace and what it means for the markets in general.

That's not all. The NYSE is initiating an independent audit of our trading systems by an outside firm every 12 to 18 months to further ensure their proper operation. The audit mechanism should be in place by the end of this month. As the audits are conducted, we're going to share the findings with the SEC.

Of course, the SEC currently oversees our capacity planning policy on a regular basis and is aware of our peak capacity.

We also have discussed the issue of planning and capacity with committees of both the Senate and House of Representatives.

But given the dynamic change in capacity as a result of the continuing integration of our markets and the introduction of new trading vehicles, we think it is appropriate to have an independent audit of our systems by outside experts on a regular basis.

This would help bring a fresh view to our thinking about the subject as well as give the Exchange and the SEC another structured document on which to focus regarding the issue of capacity.

In addition, we believe that as well as intermarket circuit-breakers, each market should put intramarket circuit-breakers in place that are triggered when risk and illiquidity become too great. And these should be articulated beforehand so that every market knows exactly what those circuit-breakers are and under what conditions they go into effect.

But it is important to recognize that while using circuit-breakers to moderate volume and volatility certainly is advisable -- especially as we take other steps to strengthen the markets as a whole, circuit-breakers in and of themselves should not be misconstrued as a panacea.

Rather, as markets become over-extended -- whether up or down -- there will always be corrections. Circuit-breakers could help moderate those corrections.

On the subject of margin requirements, we think that one agency should have the authority to set margin requirements in all equity and equity-like products. We also believe there ought to be a major study of margin levels to help ensure sufficient liquidity in the marketplace without stimulating excessive speculation, as well as better enable the markets as a whole to meet the changing needs and circumstances of the future.

We believe, too, that the clearing and settlement process should be strengthened, and that ultimately there should be one regulator for all equity and equity-related products.

In this regard, Mr. Chairman, the NYSE is pleased to have been invited by you to comment on your proposed Intermarket Monitoring Council Act. We support the objectives of your proposal -- specifically, to promote greater cooperation, coordination and information sharing among the Treasury, Federal Reserve Board, SEC and CFTC.

As John Phelan indicated in his letter to you on March 25, 1988 on this subject, he believes it is essential that the regulatory agencies constantly look at the changes affecting the financial marketplace, both domestically and internationally. And that the only question in his mind is whether legislation is needed to accomplish that goal.

Over the next few months, the different agencies have indicated their intention to meet and discuss issues of interest to us all. If this does indeed occur and if the meetings are successful, it would appear that legislation is not necessary. But if results are not forthcoming, then legislation would be appropriate and we would support it.

CONCLUSION

As our different marketplaces appear to be evolving into one market, it is critical that all of us determine the proper balance between the needs of business to raise capital and the interests of effective asset management.

In striking that balance, we must work together to moderate the pace of change so that we can better control the flow of risk within and across our markets and -- most importantly -- create an environment in which all participants have confidence in and access to the marketplace.

To do that, we must understand as best we can the course that our markets are following and the needs of all participants --.including small as well as large investors -- and build an effective framework that fits the future direction of our markets and requirements of our investors.

We at the New York Stock Exchange take this responsibility seriously and believe that by working together we can start to get ahead of the problems, understand and manage the transition to more closely related markets, and assure that we continue to have the kinds of securities markets necessary to sustain prosperity in America.

Accordingly, we intend to work with the Congress, this Committee, the SEC, the CFTC, the futures and options exchanges and others to help our system adjust to the new demands being placed on it in a way that's good for the system, for the investing public, for the public at-large and for our country as a whole.

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PATRICK J. LEAHY, VERMONT, CHAIRMAN

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United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

May 4, 1988

Mr. Richard A. Grasso
Executive Vice President
Capital Markets
New York Stock Exchange
New York, New York 10005

Dear Mr. Grasso:

As I mentioned to you in my letter of April 28, I have a number of followup questions which we did not have time to get to at the hearing. These questions are enclosed.

In order to complete the hearing record, the Committee would appreciate your answers as soon as possible. Please return your responses to Christine Sarcone, Chief Clerk.

Again, I thank you for appearing before the Committee. If you have any questions, please contact Chuck Riemenschneider at 224-2035.

Sincerely,

Patrick Leahy

PATRICK LEAHY
Chairman

PJL/bp

Enclosure

QUESTIONS FOR RICHARD GRASSO
EXECUTIVE VICE PRESIDENT, CAPITAL MARKETS
NEW YORK STOCK EXCHANGE

BY SENATOR PATRICK LEAHY

1. Most economists would say that index arbitrage has a positive effect on both securities and futures markets because it keepts the markets in line and smooths out any price disparities. Do you agree with this view?

2. The SEC report on the October market crash stated that "Futures and options on stock indexes offer significant benefits to today's capital markets...(by adding) substantial liquidity and pricing efficiency to equity markets generally. Moreover, using these products, investors are able to control the risks in their portfolios in accordance with their particular needs. As a result, the markets perform their various economic roles more efficiently." (pp. 3-4-3-5). Contrary to the SEC's conclusions, former Secretary of the Treasury Donald Regan, as recently as last week, has recommended that index futures products be outlawed. What would the consequences of the Regan approach be?

3. You've provided me with information indicating that specialist capital approximately doubled between 1981 and the market crash, at a time when the value of average daily volume increased tenfold. Didn't this decline of specialist capital in relation to the value of shares traded impede the ability of specialist to lean against the market, and what have you done to correct this problem?

4. Many reports, including the Brady Commission Report, urged the recognition of the existence of one "Global Market" to be monitored and coordinated by a single regulatory body (p. VII). During and after the stock market break, many Americans came to realize that the exchanges in Tokyo, London and the U.S. have profound effects on each other. In light of this international market, would you favor statutory creation of an intermarket coordinating council -- as I have proposed in draft legislation -- to coordinate the U.S. response to events in the "global" markets?

5. The Katzenbach study of program trading, commissioned by the NYSE, recommended that the NYSE consider trading blocks of stocks representing various indices. Do you consider this to be a beneficial trading instrument, and if so, what advantages would it offer to investors over trading futures contracts on stock indices?

6. At our recent hearing, you testified that on April 30 the NYSE would run a test on the ability of your computer system to handle daily volume of 600 million shares. Are you now confident that if the events of last October 19 were to occur today the NYSE could handle such volume in a more orderly fashion? When do you plan testing for higher levels of daily volume? From the results of these tests, were there any problem areas that should be reviewed or given further consideration by the exchange?

11 Wall Street
New York, NY 10005
212 656 5150

Richard A. Grasso
President and
Chief Operating Officer

NYSE
New York
Stock Exchange, Inc.

June 3rd, 1988

Hon. Patrick Leahy
United States Senate
Committee on Agriculture, Nutrition
and Forestry
433 Senate Russell Office Building
Washington, D. C. 20510

Dear Senator Leahy:

Attached are the answers to the follow-up questions you submitted with your letter of May 4th on the October market decline.

If I or any member of the Exchange staff can be of further aid to the Committee as it continues its consideration of the many issues involved in the market decline, please do not hesitate to call upon us.

Sincerely,

QUESTIONS FOR RICHARD GRASSO
EXECUTIVE VICE PRESIDENT, CAPITAL MARKETS
NEW YORK STOCK EXCHANGE

BY SENATOR PATRICK LEAHY

Question #1 -- Most economists would say that index arbitrage has a positive effect on both securities and futures markets because it keeps the markets in line and smooths out any price disparities. Do you agree with this view?

Answer

We agree that during periods when there are no rapid market movements and other participants, e.g., institutions and other traders, are present in the market, true aribtrage may help keep the markets in line and smooth out price disparities. However, index arbitrage is not true aribtrage since the futures contracts are not settled in stock. The arbitrage is really a spread aribtrage. It follows market trends and may exacerbate those spreads, resulting in wider volatility.

We believe that index arbitrage should be treated differently during rapidly moving markets. It was for this reason that we have submitted and received SEC approval for a rule change that will deny access to our SuperDot system for index arbitrage trades on days when the Dow moves 50 points either up or down from the prior day's close. We believe this is not a perfect solution and other avenues should be explored.

Another alternative that may warrant investigation is placing limits on the premiums or discounts of the index futures and the stock comprising the index.

Question #2 -- The SEC report on the October market crash stated that "Futures and options on stock indexes offer significant benefits to today's capital markets...(by adding) substantial liquidity and pricing efficiency to equity markets generally. Moreoever, using these products, investors are able to control the risks in their portfolios in accordance with their particular needs. As a result, the markets perform their various economic roles more efficiently." (pp.3-4-3-5). Contrary to the SEC's conclusions, former Secretary of the Treasury Donald Regan, as recently as last week, has recommended that index futures products be outlawed. What would the consequences of the Regan approach be?

Answer

We do not know what the consequences of the Regan approach would be. If the recommendation became reality, participants would seek other ways to invest. They would reevaluate how much risk they are willing to undertake and act accordingly.

Question #3 -- You've provided me with information indicating that specialist capital approximately doubled between 1981 and the market crash, at a time when the value of average daily volume increased tenfold. Didn't this decline of specialist capital in relation to the value of shares traded impede the ability of specialists to lean against the market, and what have you done to correct this problem?

Answer

To set the record straight, it should be noted that between 1981 and 1987, the volume on the NYSE increased threefold rather than the tenfold you indicate in your question. Regardless of the increase however, it is important to realize that the specialist system is essentially a balance system. The specialist is obligated to smooth out temporary imbalances in buy and sell orders. During the market activity in 1986 and 1987, specialists participated in 11% of the volume which is consistent with this level of participation over the last 10-15 years. The interaction of public orders (both institutional and retail) continue to represent the primary mechanism for establishing security prices with the specialist intervening only when necessary to fill the gap in the absence of public demand or supply. The level of specialist capital during this period was appropriate to service the needs of the marketplace.

However, as a result of the October market decline, we have instituted changes regarding specialist capital. The SEC has approved an Exchange proposal to increase the required minimum dollar amount of specialist capital from $100,000 to $1 million and tripled the altnerative measure based upon the trading unit position requirements that specialists must be able to assume.

Question #4 -- Many reports, including the Brady Commission Report, urged the recognition of the existence of one "Global Market" to be monitored and coordinated by a single regulatory body (p. VII). During and after the stock market break, many Americans came to realize that the exchanges in Tokyo, London and the U. S. have profound effects on each other. In light of this international market, would you favor statutory creation of an intermarket coordinating council -- as I have proposed in draft legislation -- to coordinate the U.S. response to events in the "global" markets?

Answer

We continue to believe that ultimately there should be one regulator for the equity and equity derivative markets. Until that change becomes a reality, the statutory creation of a body, like the Intermarket Monitoring Council that you proposed in your draft bill, or the Intermarket Coordinating Committee proposed by Senator Proxmire in S. 2256, could be very useful. Such a body could coordinate the regulation of foreign markets with that of U.S. markets and serve as the mechanism for attempting to establish comparable international regulatory standards.

Question #5 -- The Katzenbach study of program trading, commissioned by the NYSE, recommended that the NYSE consider trading blocks of stocks representing various indices. Do you consider this to be a beneficial trading instrument, and if so, what advantages would it offer to investors over trading futures contracts on stock indices?

Answer

The Exchange has formed a staff group to investigate the advisability and feasibility of trading one or two broad indices on the floor of the Exchange as suggested by Mr. Katzenbach and basket trading as suggested by the SEC's Division of Market Regulation. To date, we have reached no conclusion as to whether either of these ideas is beneficial. The market would have to evaluate their value.

Question #6 -- At our recent hearing, you testified that on April 30 the NYSE would run a test on the ability of your computer system to handle daily volume of 600 million shares. Are you now confident that if the events of last October 19 were to occur today the NYSE could handle such volume in a more orderly fashion? When do you plan testing for higher levels of daily volume? From the results of these tests, were there any problem areas that should be reviewed or given further consideration by the Exchange?

Answer

If the events of October 19 repeated themselves in exactly the same way, even though we handled them well then, we would handle them better now. On Saturday, April 30, we tested our system at a rate significantly higher than that experienced in the October period. The results of that test demonstrate that changes initiated since October would permit the Exchange to handle a comparable period with minimal problems.

PATRICK J LEAHY, VERMONT, CHAIRMAN

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United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

June 23, 1988

Mr. Richard A. Grasso
President
New York Stock Exchange
11 Wall Street
New York, New York 10005

Dear Mr. Grasso:

Thank you for your responses to my followup questions from our hearings in the Committee on Agriculture, Nutrition and Forestry into last October's market crash. As always, your contribution to the Committee's work is much appreciated.

Because I attach particular weight to your comments, I wanted to clarify a statistic which I used in my questions and which you appear to have misunderstood.

In responding to question #3, you note correctly that the average daily volume of shares traded on the New York Stock Exchange had increased about threefold between 1981 and 1987. However, during this same period, the average value of each of those shares also had increased. As a rough measure, the Dow Jones Industrial Average rose from the mid-700s to over 2,700 between August 1982 and August 1987. Similar gains of more than threefold occurred as well in the Standard and Poor's 500 and the New York Stock Exchange Composite indices.

This threefold increase in stock value, magnified by the threefold increase in daily trading volume, had resulted prior to last October 19 in approximately a tenfold increase in total equity value traded each day on the Exchange -- the figure I used in my question.

It was in this context that I was quite concerned to learn that specialist capital levels had merely doubled during the 1981 through 1987 period and therefore had not really kept pace with the explosive growth in the value of daily share volume. This disparity, it seemed, would have made it increasingly difficult for a specialist to "lean against the wind" in a high-volume, fast-moving market.

The New York Stock Exchange's recent rule revision increasing minimum capital requirements for specialists from $100,000 to $1 million is, I believe, a constructive first step in response to this point.

Please feel free to share with us any further thoughts you have on this matter in light of my clarification.

Again, I appreciate your continuing work with the Committee in this important inquiry. I know we both share an overriding concern in protecting the integrity of our financial markets and restoring investor confidence, and I look forward to continuing our joint efforts in this direction.

Sincerely,

PATRICK LEAHY
Chairman

The CHAIRMAN. Thank you very much, Mr. Grasso. Mr. Mahlmann.

STATEMENT OF KARSTEN MAHLMANN, CHAIRMAN, CHICAGO BOARD OF TRADE, CHICAGO, IL

Mr. MAHLMANN. Chairman Leahy, Senator Heflin, members of the committee.

As you know, we represent the oldest and largest futures exchange in the world, where today nearly half of all U.S. futures contracts are traded. While our major market stock index futures contract represents only 2 percent of our exchange's volume, nonetheless, the actions taken by this committee and Congress will impact the entire futures industry, and particularly our capability to compete with foreign markets. Therefore, we wish to offer our views of the markets and detail the changes made by the Board of Trade, and the entire futures industry, especially with respect to the Brady Task Force recommendations.

The Chicago Board of Trade Treasury bond futures contract provides necessary price insurance to the 40 primary dealers who underwrite the national debt. Throughout the October, 1987 market crisis, the "flight to quality" from equity to Government securities greatly increased volume and pressure on our Treasury bond contract. Nevertheless, the Chicago Board of Trade performed flawlessly. We opened every contract on time every day. We called no trading halts during any trading session. We had no delayed quotes. All member firms stayed in compliance with financial requirements; all margin obligations were met.

Since October, we have taken numerous actions to respond to the market's behavior.

First, Senator Brady emphasizes that, in reality, there is only one market. We completely concur. However, we must remember that one market is global in dimension. Senator Brady wants the U.S. financial markets to build a safer house; again, we absolutely agree. The securities and futures industries can together build that safer house—we have the incentive and the know-how to get it done—to make it sound, to make it cost-effective, and to make it stand for years as an American-led global industry.

INTERMARKET COORDINATION

To begin with, the Brady Task Force suggests that a third agency, possibly the Federal Reserve, should coordinate the activities of the SEC and CFTC on matters of intermarket concern. Chairmen Greenspan, Gramm, and Ruder have all rejected this proposal as unnecessary and potentially burdensome. We agree. But we also agree with Senator Brady that greater coordination between market regulators is necessary. The CFTC currently has the authority to deal with all futures market emergencies including closing the markets, and raising margin levels. To the extent the SEC does not have such authority over securities markets, its lack of such emergency powers should be addressed.

Chairman Ruder has stated that the SEC should regulate stock index futures because they deal with equity securities. We disagree. The CFTC was created to regulate all futures trading. If Chairman

Ruder's logic were followed to its practical conclusion, the CFTC would be dissolved; regulation of agriculture futures would go to the Department of Agriculture, Government securities futures would be regulated by the Treasury Department, petroleum futures by the Department or Energy, and so on. Such fractionalization of regulation for futures trading is clearly counterproductive, especially in view of the industry's laudable performance in October 1987.

While we believe that a great deal of communication and coordination already exists between the CFTC and the SEC, a formalization of communication procedures should be adopted. In our judgment, such a system of coordination would be more effective than the creation of a superagency structure.

INFORMATION SYSTEMS

The foundation of the safer house, which Senator Brady seeks, must be the best possible trade data information system. The task force stresses the need for improved coordination between markets. The Chicago Board of Trade and the Chicago Mercantile Exchange [CME] have jointly developed the best trade data system in the world. Our CTR-Plus system allows us to reconstruct who traded what, with whom, at what price, and at what time, and in what quantity, in every given contract to the nearest minute, and it is available to us and to our regulator the following morning. It is an unrivaled audit trail system. This committee can be justifiably proud of its vital role it played in the facilitating and in the creation of the CTR system during the 1986 CFTC reauthorization process. Senator Brady told us how impressed he was when he saw CTR in action.

The Brady Task Force states, "The stock exchanges have no system which details trades and trading times by customer." [Brady Report p. 67.] The absence of this audit trail in the securities industry currently precludes timely investigation of potential intermarket abuses such as customer order frontrunning. In the spirit of cooperation, on February 2, we wrote John Phelan, Chairman of the New York Stock Exchange and Kenneth Liebler, president of the AMEX, offering to share this copyrighted trade data system with the NYSE and the AMEX. Our respective staffs have met on several occasions to explore the stock exchange's ability to create a similar system. The adoption of a computerized trade reconstruction system by the securities industry will, for the first time, permit detection of possible violations such as intermarket customer order frontrunning.

USE OF CIRCUIT BREAKERS TO STOP MARKET FREEFALL

Futures markets already have proven circuit breakers in place in the form of price limits. Once price limits are reached, an automatic trading suspension is imposed, which is known in advance to all market participants. Such limits are now in place on all Chicago Board of Trade contracts. They were adopted by our board immediately following the stock market decline. In their present form, they will go into effect upon a 100-point Dow move. We are also evaluating with other futures and securities exchanges, and regulators, the feasibility of intraday limits, where the market would pause for a specific period of time and then reopen for further trading with expanded limits and increased margins. We support this concept in principle and we urge its adoption.

UNIFIED CLEARING SYSTEMS

Unified clearing does not require a single clearing mechanism. In the first place, stock and stock index futures markets could not be cleared through a single entity, since stock index futures settle on a same-day basis, while stock markets take 5 business days to settle. Moreover, concentrating the risk of all positions in one clearing entity could increase, not decrease, the chances of a breakdown of the financial system.

Unified clearing should mean improved sharing of pay and collect information among related markets and respective lenders to market participants. Long prior to October 1987, the Board of Trade and the CME have shared daily net pay and collect information; all other futures exchanges, plus the Options Clearing Corporation [OCC], will be online in a matter of months. More recently, the National Securities Clearing Corporation [NSCC] has been asked to participate in this information sharing. Additionally, meetings have been held with major banks supplying credit to market participants regarding their role in this vital information sharing process.

CHAIRMAN LEAHY'S DRAFT LEGISLATIVE PROPOSAL

In view of all the progress to implement the spirit of Senator Brady's recommendations, which the industry has already undertaken voluntarily, we do not see the need for any additional legislation at this time.

Indeed, the objectives and specifics of Chairman Leahy's thoughtful draft bill have, to a large extent, already been implemented, perhaps due in large part to the mere proposal of the bill itself. To add an additional layer of decisionmaking, emergency declarations, and possible judicial review of those actions is not necessary in view of the changes already in place. Moreover, granting a newly created agency such additional regulatory powers as rulemaking authority will necessarily reduce the agency authority granted by Congress to both the CFTC and the SEC. Chairmen Greenspan, Gramm, and Ruder have already testified before the Senate Banking Committee in opposition to any such dilution of jurisdiction.

While we understand the concern and the intentions which motivate such proposed legislation, we feel that the actions of the private sector and the existing regulators have addressed those concerns.

CHANGES IN FUTURES MARGINS

Margins is probably the most misunderstood issue arising from the October market concerns. The Brady Report, however, puts it in context. First, the report confirms that futures margins and stock margins serve entirely different purposes and functions. In Chairman Greenspan's words: "Futures margins are a performance bond, while stock margins are an extension of credit." In futures markets there is no extension of credit; you pay as you go. Consistent with these purposes, and the different functions served by both markets, futures margins must be paid daily; stock margins must be paid within 7 business days.

Based on these recognized differences, no one is recommending that futures and stock margins be identical. Rather, the Brady Report recommends that "futures margins should be consistent with effective stock margins for professional market participants"—in the stock markets—"such as broker-dealers."

You have heard testimony that the popular media perception of 50 percent stock margins is a myth. Instead, the Brady Report found that "professionals . . . can invest in stocks on a 20 to 25 percent margin." In comparison to stock margins of 20 to 25 percent, Major Market Index [MMI] stock index futures' initial margins are now 15 percent.

Considering the manifold differences between futures and stock margins, including daily payment as well as the differences in the market functions, futures margins already are harmonized with stock margins.

Additionally, margin control for futures should remain the responsibility of the exchanges. The Board of Trade adjusted its margins over 200 times in 1987 in order to ensure that both cost efficiency and financial integrity are maintained. Congress has correctly concluded, again and again, that only exchanges have the necessary expertise and flexibility to maintain that delicate balance.

FOREIGN COMPETITION

Were Congress now to take action to alter our proven system of margin-setting, or otherwise increase the regulatory costs of doing business on our exchange floors, the beneficiary of such action would be our foreign competition, not the American public.

During the week of October 19, London markets profited when our bond contract hit its price limits. Bond futures business could not be transacted in Chicago, so London volume soared by 800 percent over normal trading volume. Subsequent to the Brady Report, the Japanese Ministry of Finance has significantly expanded the market for stock index trading in Tokyo. When asked to comment on our imposition of price limits, London exchange officials expressed approval because "then more business will come to London."

Like the automobile industry in earlier times, futures markets are a uniquely American success story that is now being copied worldwide. These markets operate under national mandate and subsidy which has the avowed intention of surpassing United States markets.

Today, we have the best futures markets in the world—reputed for both their cost efficiency and market integrity. Let us carefully preserve that delicate balance—in the face of our less regulated, foreign competition—as we approach any proposals for change.

Let us not deceive ourselves into thinking that our foreign competitors will not create a quality product at the lowest price possible.

In closing, gentlemen, I would simply urge that you not allow the U.S. futures industry to suffer the same fate as befell the automobile industry.

Our remarks have been brief. Mr. Chairman, thank you. I would also like to offer for the record a more lengthy written submission.

[The prepared statement, supplemental submission, letter from Senator Leahy, questions, and responses of Mr. Mahlmann follow:]

STATEMENT OF
KARSTEN MAHLMANN, CHAIRMAN, CHICAGO BOARD OF TRADE
BEFORE THE SENATE COMMITTEE
ON AGRICULTURE, NUTRITION & FORESTRY
APRIL 27, 1988

Chairman Leahy, Members of the Committee--

Thank you for permitting us to appear before you today to present our views on the serious issues which occupy these hearings. As you know, we represent the oldest and largest futures exchange in the world where today nearly half of all U.S. futures contracts are traded. While our Major Market stock index futures contract represents only 2% of our Exchange's volume, nonetheless, the actions taken by this Committee and Congress will impact the entire futures industry and particularly our ability to compete with foreign markets. Therefore, we wish to offer our views of the markets and detail the changes made by the Board of Trade and the entire futures industry especially with respect to the Brady Task Force recommendations.

The Chicago Board of Trade Treasury bond futures contract provides necessary price insurance to the forty (40) primary dealers who underwrite the national debt. Throughout the October, 1987 market crisis, the "flight to quality" from equity to government securities greatly increased volume and pressure on our Treasury Bond contract. Nevertheless, the Chicago Board of Trade performed flawlessly. We opened every contract on time every day. We called no trading halts during any trading session. We had no delayed quotes. All member firms stayed in compliance with financial requirements; all margin obligations were met.

Since October, we have taken numerous actions to respond to the marketplace's behavior. Today we will address the Presidential Task Force's recommendations one by one and Chairman Leahy's draft legislative proposal.

First, Senator Brady emphasizes that, in reality, there is only one market. We completely concur. However, we must remember that one market is global in dimension. Senator Brady wants the U.S. financial markets to build a safer house; again, we absolutely agree. The securities and futures industries can together build that safer house--we have the incentive and the know-how to get it done--to make it sound, to make it cost-effective, and to make it stand for years as an American-led global industry.

Intermarket coordination -- To begin with, the Brady Task Force suggests that a third agency, possibly the Federal Reserve, should coordinate the activities of the SEC and CFTC on matters of intermarket concern. FRB Chairman Greenspan, CFTC Chairman Gramm and SEC Chairman Ruder have all rejected this proposal as unnecessary and potentially burdensome. We agree. But we also agree with Senator Brady that greater coordination between market regulators is necessary. The CFTC currently has the authority to deal with all futures market emergencies including closing the markets, and raising margin levels. To the extent the SEC does not have such authority over securities markets, its lack of such emergency powers should be addressed.

SEC Chairman Ruder has stated that the SEC should regulate stock index futures because they deal with equity securities. We disagree. The CFTC was created to regulate all futures trading. The events of October 1987 show that the CFTC and the futures exchanges performed their Congressionally-legislated functions extremely well. It appears that the SEC already has more than enough to regulate given the number of securities customers' complaints after October 19, 1987 . Moreover, if Chairman Ruder's "logic" were followed to its practical conclusion, the CFTC would be dissolved; regulation of agriculture futures would go to the Department of Agriculture, government securities futures would be regulated by the Treasury Department, petroleum futures by the Department of Energy and Commerce, and so on. Such fractional regulation for futures trading is clearly counter productive, especially in view of the industry's laudable performance in October, 1987.

Congress has repeatedly recognized that futures contract trading - regardless of the commercial product which is the subject of the futures contract - is best delegated to one regulatory agency with unique expertise. We believe that is in the best public interest. Therefore, we ask you to carefully consider any action which may lead to any diminution and division of jurisdiction.

While we believe that a great deal of communication and coordination already exists between the CFTC and SEC, a formalization of communication procedures should be adopted. In our judgement, such a system of coordination would be more effective than the creation of a superagency structure.

Information systems -- The foundation of the safer house which Senator Brady seeks must be the best possible trade data information system. Throughout its report, the Brady Task Force stresses the need for improved coordination between markets. The Chicago Board of Trade and the Chicago Mercantile Exchange have jointly developed the best trade data system in the world. Our CTR-Plus system allows us to reconstruct who traded what, with whom, at what price, and in what quantity in every given contract to the nearest minute and it is available to us and to our regulator the following morning. It is an unrivalled audit trail system. This Committee can be justifiably proud of its vital role in facilitating the creation of CTR during the 1986 CFTC reauthorization process. Indeed, Senator Brady told us how impressed he was when he saw CTR in action.

The Brady Task Force states "The stock exchanges have no system which details trades and trading times by customer." (Brady Report p. 67). The absence of this audit trail in the securities industry currently precludes timely investigation of potential intermarket abuses such as customer order frontrunning. In the spirit of cooperation, on February 2, we wrote John Phelan, Chairman of the New York Stock Exchange and Kenneth Liebler, President of the American Stock Exchange, offering to share this copyrighted trade data system with the NYSE and the AMEX. Since that time, our respective staffs have met on several occasions to explore the NYSE's ability to create a similar system. The adoption of a computerized trade reconstruction system by the securities industry will significantly raise the level of those exchanges' audit trails so that vital information can flow two ways to facilitate intermarket coordination and expeditiously detect possible violations such as intermarket customer order frontrunning.

Additionally, we have increased our participation in the Intermarket Surveillance Group which will facilitate communication and the exchange of audit trail data among all stock, options and futures markets. Discussions are currently progressing regarding emergency contingency plans, communication and the means of dealing with such intermarket abuses as customer order frontrunning. The exchanges and our respective regulators have the means and ability to best deal with all these issues.

Use of circuit breakers to stop market freefall -- Futures markets already have proven circuit breakers in place in the form of price limits. Once price limits are reached, an automatic trading suspension is imposed which is known in advance to all market participants. Such limits are now in place on all Chicago Board of Trade contracts. They were adopted by our Board of Directors for our MMI contract immediately following the stock market decline; in their present form, they will go into effect upon an equivalent DJIA move of approximately 100 points. We are also evaluating with other futures and securities exchanges, as well as the CFTC and SEC, the feasibility of "intra day limits" where the market would "pause" for a specified period (perhaps one hour) and then reopen for further trading with expanded limits and increased margins. We support this concept in principle and urge its adoption.

All other futures exchanges except one have implemented similar price limits on their stock index futures contracts. The New York Futures Exchange, a wholly-owned subsidiary of the New York Stock Exchange, currently has implemented no price limits or other circuit breaker. NYFE's President has been quoted that NYFE has not done so because it is following the policy lead of its parent, the NYSE.

Securities markets have not yet adopted price limits. Instead, trading halts are called at the discretion of a specialist. Such trading halts should be formalized and must be known in advance by the public in order to be effective and fair. Once such procedures have been adopted, the stock and futures markets can coordinate the use and levels of price limits and trading halts in stock and stock index futures trading.

The NYSE has implemented a Rule approved by the SEC which limits index arbitrage on its computerized DOT system when the

DJIA moves by 50 points. This "disconnects" the unified markets and deprives them of the arbitrage found by the Brady Report to be so stabilizing to the markets. We agree with Senator Brady and Task Force Executive Director Glauber that this SEC-approved Rule is a disconnection of the related markets - not an appropriate circuit breaker. We believe this disconnection increases market volatility as evidenced by the market decline on April 14, 1988..

Unified clearing systems -- Unified clearing does not require a single clearing mechanism. In the first place, stock and stock index futures markets could not be cleared through a single entity since stock index futures settle on a same-day basis while stock markets take five business days to settle. Moreover, concentrating the risk of all positions in one clearing entity could increase, not decrease the chances of a breakdown of the financial system.

Unified clearing should mean improved sharing of pay and collect information among related markets and respective lenders to participants. The Chicago Board of Trade has spearheaded a successful effort to adopt it in the futures industry. Long prior to October, 1987, the Chicago Board of Trade and the Chicago Mercantile Exchange (which represent 75% of total U.S. futures volume) have shared daily net pay and collect information; all other futures exchanges plus the Options Clearing Corporation (for securities options) will be on-line in a matter of months. More recently, the National Securities Clearing Corporation (the principal clearing entity for securities trades) has been asked to participate in this information-sharing. Additionally, meetings have been held with major banks supplying credit to market participants regarding their role in this vital information sharing process. Thus, critical detailed data on the daily flow of funds is presently shared by most of the intermarket clearing entities who evaluate risk to the system and could soon be shared by all.

To further facilitate the critical flow of funds among market participants, the Board of Trade further recommends that Federal Reserve wire hours should be expanded and that all bank and financial exchange holidays should be coordinated. These changes, in conjunction with those already in place and in progress will address the clearing and credit systems which were of such concern to the Brady Task Force.

Chairman Leahy's Draft Legislative Proposal

In view of all the progress to implement the spirit of Senator Brady's recommendations which the industry has already undertaken voluntarily, we do not see the need for any additional legislation at this time. Indeed, the objectives and specifics of Chairman Leahy's thoughtful draft bill have to a large extent already been implemented perhaps due in large part to the mere proposal of the bill itself. To add an additional layer of decision making, emergency declarations and possible judicial review of those actions is not necessary in view of the changes already in place. Moreover, granting a newly created agency such additional regulatory powers as rulemaking authority will necessarily reduce the agency authority granted by Congress to both the CFTC and the SEC. FRB Chairman Greenspan, CFTC Chairman Gramm and SEC Chairman Ruder have already testified before the Senate Banking Committee in opposition to any such dilution of jurisdiction.

While we understand the concern and intentions which motivate such proposed legislation, we feel that the actions of the private sector and existing regulators have addressed those concerns. Moreover, we will continue our efforts to improve the systems and procedures in place. We feel that these private sector efforts will lead to implementation of Senator Brady's most critical recommendations and further Chairman Leahy's objectives by strengthening the interrelations between the markets to the ultimate benefit of all market participants.

Changes in futures margins -- This is probably the most misunderstood issue arising from the October market concerns. The Brady Report, however, puts it in context. First, the Report confirms that futures margins and stock margins serve entirely different purposes and functions. In Chairman Greenspan's words before the Senate Banking Committee, futures margins are a performance bond, while stock margins are extensions of credit. As this Committee well knows, in the futures markets, there is no extension of credit; you pay as you go. Consistent with these purposes and the different functions served by both markets, futures margins must be paid daily; stock margins must be paid within seven business days.

Based on these recognized differences, no one is recommending that futures and stock margins be identical. Rather, the Brady Report recommends (page 64) that "futures margins should be consistent with effective stock margins for professional market participants such as broker-dealers."

You have heard testimony that the popular media perception of 50% stock margins is a myth. Instead, the Brady Report found (page 65) that "professionals...can invest in stocks on a 20% to 25% margin." In comparison to stock margins of 20-25%, Major Market Index stock index futures initial margins are now 15%. (All futures exchanges now have greatly increased initial margins levels for stock index futures contracts since October, 1987 except for one; the New York Futures Exchange has not done so for the stated reason that it is following the policy of its parent, the New York Stock Exchange.)

Considering the manifold differences between futures and stock margins including daily payment as well as the differences in the market functions, futures margins already are "harmonized" with stock margins.

To the extent that initial futures margins are lower than securities margins, it is vital to consider the different purposes of the two markets. Stock margins are the equivalent of a downpayment on a house while futures margins are the equivalent of the insurance premium which one pays for the policy that protects against loss of the house. If people were forced to pay insurance premiums equal to half the value of their homes, they simply would refuse to buy home insurance. Similarly, if futures margins were arbitrarily increased, pension funds and other institutional investors would use foreign markets or simply not use stock index futures at all to manage risk, thereby leaving their participants - the hundreds of thousands of pensioners - vulnerable to substantial loss from volatile markets like those which existed in October.

Let us examine an actual example of futures and securities margins to exemplify the differences in the two systems.

If a market professional purchased one Chicago Board of Trade Major Market Index futures contract on Wednesday, October 14, 1987, he would have had to pay an initial futures margin of $4,500 that day, in advance of the transaction. If, instead of purchasing the futures contract, he had purchased the actual portfolio of stocks comprising the Major Market Index, his initial stock margin requirement would be at the 20-25% margin level for "professional market participants" according to the Brady Commission. However, the professional would not have been required to pay margin until 7 days after the stock was purchased.

The table attached to these remarks shows that over the next 4 days, although no margins were required on the stock portfolio positions, the professional would have been required to pay a large percentage of additional cash into his futures margin account.

Since his futures account would have been settled daily, he would have been required to pay an additional $4,500 in cash after the close of trading on Wednesday, the 14th, because the value of the contract declined by that amount during that trading day. In contrast, the margin required on his portfolio of actual stocks as a result of the adverse market move would have been zero; stock margin would not be required for another 7 days.

On Thursday, October 15, he would have been required to pay an additional $2,350 in cash into his futures margin account as a result of the price drop that day. The margin required on the actual stock portfolio remains at zero; no stock margin would be required for 6 more days.

On Friday, October 16, a further price drop demands another $5,525 payment in cash into his futures margin account. The required stock margin remains at zero; no stock margin would be required for 5 more days.

On Monday, October 19, the extremely sharp market break would have required a further $27,125 deposit into the futures margin account. The required stock margin would still be zero; no stock margin would be required for 4 more days.

By the opening of trading on Tuesday, October 20, he would have paid a total of $46,500 into his futures margin account, 51% of the value of his position on that day or over 37% of the value of the position based on the original purchase price. At this point, no margin would be required for 3 more days.

Additionally, at this juncture the 32 percent (or $39,500) decline in the value of the stock portfolio would have exceeded the 25% original stock margin call of $30,906. The professional's stock broker would have reason to be extremely concerned. Even if the necessary margin money was, in fact, received 3 days hence, the account would still be $8,600 in deficit.

This example also vividly shows why margin control for futures should remain the responsibility of the exchanges. The Board of Trade adjusted its margins over 200 times in 1987 in order to insure that both cost efficiency and financial integrity are maintained. Congress has correctly concluded, again and again, that only exchanges have the necessary expertise and flexibility to maintain that delicate balance. Nothing in the October 1987 market experience gives any reason to alter that conclusion. To the contrary, the exchanges are best equipped to react quickly to such quickly changing markets.

Foreign competition -- Were Congress now to take action to alter our proven system of margin-setting or otherwise increase the regulatory costs of doing business on our exchange floors, the beneficiary of such action would be our foreign competition, not the American public.

During the week of October 19, London markets profited when our bond contract hit its price limits. Bond futures business could not be transacted in Chicago, so London volume soared by 800% over normal trading volume. Subsequent to the Brady Report, the Japanese Ministry of Finance has significantly expanded the market for stock index trading in Tokyo. When asked to comment on our imposition of price limits, London exchange officials expressed approval because "then more business will come to London."

Like the automobile industry in earlier times, futures markets are a uniquely American success story that is now being copied in London, Tokyo, Sydney, Hong Kong, Toronto and Paris. Nor is that competition merely privately funded; these markets operate under national mandate and subsidy which has the avowed intention of surpassing United States markets.

Today, we have the best futures markets in the world--reputed for both their cost efficiency and market integrity. Let us carefully preserve that delicate balance--in the face of our less regulated, foreign competition--as we approach any proposals for change. And let us not deceive ourselves into thinking that our foreign competitors will not create a quality product at the lowest price possible.

In closing, gentlemen, we would simply urge that you not allow the U.S. futures industry to suffer the same fate as befell the American automobile industry.

Our remarks have been necessarily brief. We appreciate the opportunity to supplement our statement with extensive written materials supporting the views we have expressed today.

Thank you.

Margin Comparison: One Futures Contract Position of the Major Market Index (MMI) vs. One Stock Portfolio Position of MMI Component Stocks

Note: One MMI futures contract was purchased on October 14, 1987, at a price of 494.50 points, or $123,625.00.
One portfolio of MMI component stocks equal in value to one MMI futures contract was purchased on October 14, 1987, at the same price level, 494.50 points.

			Futures Margin Account			Stock Margin Account	
October 14-23 1987	Closing Market Value of the Position	Daily Change in the Value of the Position	Accumulated Paid-In Margin at Opening of Trading	Accumulated Paid-In Margin as a Percent of the Day's Closing Market Value	Accumulated Paid-In Margin as a Percent of the Original Purchase Value	Accumulated Paid-In Margin at Opening of Trading	Accumulated Paid-In Margin as a Percent of the Day's Closing Market Value
Wednesday	$119,125.00	–$ 4,500.00	$ 4,500.00[1]	3.78%	3.64%	0	0%
1. Thursday	$116,775.00	–$ 2,350.00	$ 9,000.00[2]*	7.71%	7.28%	0	0%
2. Friday	$111,250.00	–$ 5,525.00	$11,350.00	10.20%	9.18%	0	0%
3. Monday	$ 84,125.00	–$27,125.00	$16,875.00	20.06%	13.65%	0**	0%
4. Tuesday	$ 91,125.00	$ 7,000.00	$46,500.00[3]	51.03%	37.61%	0	0%
5. Wednesday						0*	0%
6. Thursday						0	0%
7. Friday						Initial Margin Payment Required (Day 7)	

*Position Cleared; same day as transaction in futures, 5 days after transaction in stock market.

**Cumulative market losses of $39,500.00 for four days exceed the value of an initial 25 percent margin ($30,906.00), not required to be paid for four more days.

Loss October 14	$ 4,500.00
Loss October 15	2,350.00
Loss October 16	5,525.00
Loss October 19	27,125.00
Cumulative losses, four days	$39,500.00

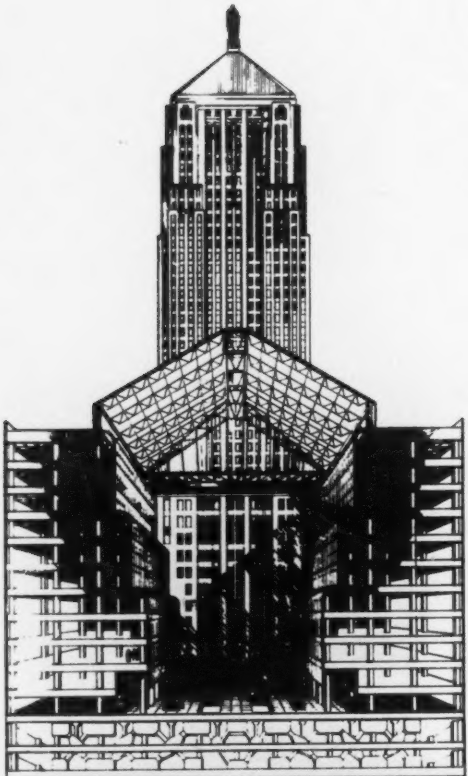
[1] Initial Margin Deposit of $4,500.

[2] $9,000 = $4,500 Initial Margin Deposit + $4,500 loss in value.

[3] Margin requirements increase to $7,000 from $4,500

Supplemental Submission Before the Senate Committee on Agriculture, Nutrition, and Forestry

April 27, 1988



Chicago Board of Trade

SUPPLEMENTAL SUBMISSION OF THE BOARD OF TRADE OF THE CITY OF CHICAGO BEFORE THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY

April 27, 1988

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SUPPLEMENTAL SUBMISSION OF THE BOARD OF TRADE OF THE CITY OF CHICAGO Before the Senate Committee on Agriculture, Nutrition and Forestry

April 27, 1988

I. INTRODUCTION

The Board of Trade of the City of Chicago ("Board of Trade" or "CBOT") wishes to thank Chairman Leahy and the members of the Committee for extending the invitation to supplement our oral remarks before the Committee. What follows will be a more extensive discussion of the market events of last October, what we can all learn from those events, and what should be done as a result with particular emphasis on those market changes made to date and analysis of several other proposals including Chairman Leahy's draft legislative proposal.

The market events of October 1987 have generated voluminous articles, commentaries, studies and reports. There can be no question that these events are worthy of this degree of attention. However, much misinformation has been generated as a result and some vital information glossed over in the process. The Chicago Board of Trade would like to focus these remarks directly on the most difficult and challenging questions so that the Committee will be fully informed.

We will discuss in detail: (1) the performance of the markets, particularly the Board of Trade's markets; (2) the existence of a global marketplace and particularly the critical challenge to U.S. financial markets which is posed by foreign competition; (3) the timeliness and accuracy of market data; (4) clearing and credit mechanisms; and (5) perhaps the area where the most misinformation presently exists, the differences between futures and securities margins. Included in these areas of discussion will be summaries of actions taken to date and discussions of proposed alternative actions.

The Chicago Board of Trade is the world's oldest and largest futures exchange. Founded in 1848 and subject to Federal legislation and oversight since 1923, the Board of Trade began as an agricultural marketplace. Using standardized futures contracts, agricultural market participants hedged the risk of their cash market positions and discovered the most accurate commodity price levels through open outcry, auction market bidding in one competitive, central marketplace. By the 1970's, we knew these same principles could be successfully applied to financial products as well. In 1975, we began trading financial futures contracts.

Today, nearly half of the futures and futures options contracts traded in the United States are transacted on the floor of the Chicago Board of Trade. This includes not only traditional grain futures, but the two largest U.S. futures exchange contracts - U.S. Treasury Bond futures and options on U.S. Treasury Bond futures. Our Treasury Bond contracts provide an indispensable link in facilitating the sale of U.S. government debt in the most efficient, least expensive manner possible. The value of U.S. government securities transactions traded at the Board of Trade in 1987 was the equivalent of 9.5 trillion dollars. Thus, in the markets of October, 1987, when investors shifted from U.S. equity securities markets to the more secure U.S. government securities markets, the Board of Trade played a critical and indispensable role.

The Board of Trade does trade a stock index futures contract, the Major Market Index ("MMI"), under license from the American Stock Exchange (which trades the same index as a securities option.) The MMI futures contract represents approximately two percent of the Exchange's total volume and ten percent of the volume of U.S. stock index futures trading. Our MMI ranks third behind the S&P 500 futures contract traded at the Chicago Mercantile Exchange and the NYSE Composite stock index futures contract traded at the New York Futures Exchange, the wholly-owned subsidiary of the New York Stock Exchange.

Thus, while not a leading participant in the area of stock index futures trading, the focus of this Committee's inquiry, the Chicago Board of Trade nonetheless is an integral part of the U.S. financial marketplace and uniquely positioned to comment on the broad, national policy issues inherent in this Committee's inquiry.

II. WORLD FINANCIAL MARKETS - OCTOBER 1987

Any meaningful review of the market events of October 1987 must begin with an understanding of the fundamental economic forces at work in the world's financial markets. An unprecedented bull market had pushed stock prices to inflated levels in major markets around the world. Also, key changes in the size and speed of major world market participation were already translating fundamental economic signals into more abrupt and volatile stock market movements.

The events of October 1987 occurred in a world financial market dominated by a small number of very large institutions with the capacity to move massive amounts of investment dollars in or out of any stock market at unprecedented speed. American firms are not alone in their ability to do this. Firms such as Nomura, Daiwa, Yamaichi, and Nikko rival and exceed Salomon, Merrill Lynch, Drexel and Goldman Sachs in size and capitalization. In the U.S., foreign purchases of long term U.S. government securities grew more than ten-fold in the last five years.1/ Purchases of Japanese investors

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1/ From $97.9 billion in 1983 to an estimated $1,196.2 billion in 1987. Treasury Bulletin.

alone constituted about half of these foreign purchases.2/ Total foreign purchases of U.S. stocks have nearly quadrupled over this period.3/ With this increase in foreign participation in our markets, a fundamental economic change such as a decline in the dollar can spur a sudden massive shift in investments by a relatively small number of institutions.

U.S. markets and world markets are extremely competitive, leading to rapid movements of large funds for a small cost or return advantage. A major reason foreign capital flows to the U.S. has been the efficiency of our domestic markets. The U.S. has one of the few markets large enough to handle the enormous amounts of capital which global financial market participants have to invest. The most attractive U.S. markets, for example government securities and stocks, are large and liquid. Futures markets play a vital role in ensuring this efficiency and liquidity, particularly in world grain markets and U.S. Treasury bond markets, a fact repeatedly recognized by those who have studied futures markets. For example, the 1984 study of the futures markets conducted by the Federal Reserve Board, the Commodity Futures Trading Commission ("CFTC") and the Securities and Exchange Commission ("SEC") concluded:

> "From the perspective of the economy as a whole, then, it would appear that futures and options make possible greater output per unit of productive resources, just as in the case of any cost saving technological innovation."4/

Academic studies have reaffirmed the value of the markets; for example:

> "The net effect of dealers' use of (stock index and other financial) futures markets is to lower both the variance of interest rates and the cost of capital to firms. In this manner,

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2/ Japanese purchases in 1987 are estimated to be $553.5 billion. Treasury Bulletin.

3/ From $69.6 billion in 1983 to an estimated $254.3 billion in 1987. Treasury Bulletin.

4/ A Study of the Effects on the Economy of Trading in Futures and Options, Board of Governors of the Federal Reserve System, Commodity Futures Trading Commission, Securities and Exchange Commission (1984), p. VI-12.

futures markets are conducive to a higher rate of capital formation."5/

Futures markets are an integral part of the U.S. financial markets and contribute significantly to their efficiency. Their contribution is well understood by foreign leaders seeking to develop their own futures markets. Former Japanese Prime Minister Nakasone, for example, in a speech to the Japanese Parliament called futures markets a "....fundamental strength of capitalist economies..." and urged aggressive policies promoting futures markets in Japan.6/ Japan has indeed moved aggressively. Since October, the Ministry of Finance has issued recommendations for new legislation which will result in stock index futures trading in Japan along U.S. lines, accelerated introduction of options trading, and an entire new financial futures market which will trade U.S. government Treasury Bond futures. The Japanese government has clearly followed the course charted by Mr. Nakasone.

III. MARKET PERFORMANCE AT THE CHICAGO BOARD OF TRADE

While the stock market events of October affected the Chicago Board of Trade as they did all financial markets, the CBOT futures markets continued to function extremely well. Trading volume of Treasury bond futures and options set records as investors shifted from stocks to government securities, and bond prices increased sharply. Portfolio managers relied heavily on futures markets for efficient portfolio reallocation; Chicago Board of Trade Treasury bond futures and options markets were in great demand during the week of October 19. Total Treasury bond futures and options trading volume during the week was 3.1 million contracts, representing approximately $300 billion of Treasury bonds.

The U.S. Treasury bond futures contract has become an indispensable component of the long-term U.S. capital market and a vital tool for primary government security dealers in underwriting U.S. government debt. In just over ten years, the Treasury bond futures market at the Chicago Board of Trade has come to epitomize the value of financial futures to the U.S. economy. Among a virtually limitless list of market uses, depository institutions

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5/ "Futures Markets and Capital Formation," Jerome L. Stein (Brown University) in Futures Markets: Their Economic Role Anne E. Peck (Ed.), American Enterprise Institute for Public Policy Research (1985), p. 118.

6/ Remarks to the Budget Committee of the Diet; November 6, 1986. Journal of Commerce, 11/7/86.

use Treasury bond futures to adjust the risk exposure of their asset/liability mix, primary government securities dealers offset the risk of their inventory with Treasury bond futures, and portfolio managers hedge their income-earning assets with Treasury bond futures.

The role of the Treasury bond futures market in the issuance of the U.S. government debt is one of the most important aspects of this market. Primary dealers underwriting U.S. government debt are major users of the futures market to manage their exposure to interest rate fluctuation. The availability of such an efficient hedging tool has made it easier for the government to sell its debt which, in turn, has lowered borrowing costs. Another obvious measure of the market's contribution to the U.S. is the eagerness with which foreign firms seek to emulate the success of Treasury bond futures as they establish their own financial futures markets.7/

Industry observers single out an event in December 1982 as one particularly indicative of the importance of Treasury bond futures even five years ago. The Treasury Department had scheduled an auction of Treasury securities in late December. When it learned that the CBOT financial futures markets would be closing early for the Christmas holiday, it rescheduled the auction. Efficient issuance of the debt was not assured with the CBOT futures markets closed.

Although the benefits of Treasury bond futures are felt most directly in reduced transaction costs in the financial sector, the consequences for economic welfare extend beyond that narrow focus. The increased liquidity and risk reduction facilities available to portfolio managers and other investors is reflected in a reduced cost of capital to business firms of all sizes. The ultimate benefit, therefore, is translated into greater capital formation for the economy as a whole.

A. The "Open Outcry" System

The Chicago Board of Trade could not have achieved this level of market liquidity without the efficiencies derived through its open outcry auction system. Although the trading systems at the futures exchanges may appear disorganized and even chaotic to the untrained

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7/ Futures markets for domestic government securities currently exist in the United Kingdom, France, Japan, Australia, Canada and the Netherlands. Futures markets in domestic government securities are being studied in Switzerland, Germany, Hong Kong, Norway and Sweden.

observer, futures trading is a highly-developed art which provides the critical, central meeting point for market information and incoming orders from all segments of the worldwide trading community. This ability to enter orders from all over the world to all sides of the trading pit to a large number of market participants and market makers generates liquidity in the futures markets.

In 1986, the Board of Trade commissioned a study entitled "The Determinants of Market Liquidity" by Dr. Sanford Grossman of Princeton University and Dr. Merton Miller of the University of Chicago (hereinafter, "Miller and Grossman"). According to Miller and Grossman, "markets are liquid when they provide immediacy for large order executions at low costs." In the futures markets, commercial market participants usually have an established cash market position and are looking to immediately transfer the price risk of holding that cash market position to other market participants or market makers before market fluctuations can result in losses on those positions. Miller and Grossman state:

> "the great variety we see in market making arrangements has emerged in response to differences in the costs and benefits of immediacy in different market settings. [When the demand for immediacy is as high as it is in futures trading,] an open outcry system with many competing market makers is likely to be the most efficient response. The larger the number of market makers, the smaller is the share of the risk of an incoming order that any single market maker must bear. Hence, the larger is the size of an order that can be executed immediately without adverse price consequences."

Miller and Grossman further conclude that:

> "Where the advantages of immediacy are smaller than they are for trading futures contracts, quite different kinds of market making arrangements may be appropriate.... When the flow of orders and the demand for immediacy is not enough to support the continuous presence of many competing market makers, the granting of a monopoly franchise may induce a market maker to remain available as in the specialist system of the New York Stock Exchange. Specialist markets can often provide price stability for small orders, but a single specialist is unlikely to be able to supply sufficient liquidity on the trading floor for large trades to be executed immediately without adverse price effects. When a large order imbalance arises, specialist systems avoid price fluctuation by calling for trading halts, thereby sacrificing immediacy."

In summary, because there are a great number of market makers in a futures pit competing with each other for incoming orders, the very nature of that competition dictates that the incoming order will be executed immediately at the fairest price. Because there are a great number of market makers, multiple incoming orders can be executed simultaneously at competitive market prices.

In contrast, because the specialist trading system relies upon a single firm or individual, an incoming order can only be executed under the auspices of the specialist and at a price determined by the specialist. Those with competing bids or offers for the incoming order are at a disadvantage to the specialist. Similarly, because each order must be routed through a single specialist, orders must be executed sequentially, rather than simultaneously as in the futures markets. The very nature of this system sacrifices immediacy. Moreover, in many fast-moving market situations, a single specialist may be unable to cope with the pace of trading and choose instead to halt trading. This process was likely a contributing factor in the October 19th market collapse.

B. Superior Market Surveillance

One of the fundamental reasons that the Chicago Board of Trade's markets perform so well is the quality and immediate availability of market information. A vivid example of the quality of information is the Exchange's audit trail. Historical experience has taught the CBOT that precise and timely market information is critical to maintaining an orderly market, investigating market conditions and maintaining the integrity of the market.

The CBOT is able to obtain market information on a daily basis due to its clearing system which includes daily matching of trades and settlement of financial obligations. The CBOT currently matches transactions twice per day and is in the process of moving towards on-line clearing which eventually will provide market trading information throughout the course of a trading day. Because all trades are currently submitted to the Exchange's clearing organization on a daily basis, the Exchange is able to have trading information available for review the next morning by staff members of its Office of Investigations and Audits.

One of the primary information databases generated by the Board of Trade is its Computerized Trade Reconstruction System ("CTR Plus System"). The CTR Plus System reconstructs daily trading activity for all market participants and determines the execution time of each transaction. The CTR Plus System gathers the quantity, price, order or trading card number, customer, firm, and broker; opposite customer, firm and broker; and half-hour time bracket. Each time a price change occurs in the marketplace, the new price, along with the exact time it was executed to the nearest second, is electronically recorded in the Time and Sales Journal by independent Exchange employees. The CTR Plus System matches the trade data input into the Exchange's clearing system with the Time and Sales Journal information to calculate the exact time each trade was executed.

Additionally, the trading data accumulated is automatically analyzed on a daily basis for possible violations of the CBOT's rules and regulations. The CTR Plus System permits investigators to reconstruct trading activity chronologically, by individual trader, clearing firm or, if necessary, by customer.

The CTR Plus System also reviews for brokers potentially trading ahead of their customer orders, analagous to customer order frontrunning in the securities markets. The system will identify any broker who traded ahead of a customer's order for his own account at a better price than his customer. In addition, the system will identify any clearing firm that traded for its proprietary account ahead of and at a better price than a customer.

A number of other programs are available through the CTR Plus System. These include:

- accommodation trading, which identifies participants who do not offer their trades competitively to the market;
- crossed orders, which indicates that a broker or firm traded one customer's order against another and did not offer orders competitively by open outcry to the marketplace;
- taking the other side of a customer's order, which indicates a broker or firm who traded against a customer's order for his own account; and
- wash trading, which identifies when two traders are frequently trading with one another at identical prices.

In addition, other forms of critical market information are available on a daily basis to the CBOT. For example, the Board of Trade maintains a large trader reporting system. Every market participant with an open position in excess of a certain specified number must report his position to the Exchange on a daily basis. This information allows the Exchange to quickly construct the composition of all major participants in its marketplace.

Moreover, member firm financial statements are submitted to the Exchange on a regular basis. Financial statement information is immediately input into the Exchange's computer system which checks the statement for clerical accuracy and immediately identifies any firm that does not comply with minimum capital or segregation requirements or experiences unusual financial trends.

Further, because of the Exchange's daily settlement procedure, it is able to identify the total obligations ("pays") or gains ("collects") from every clearing member for its customer and proprietary accounts on a daily basis. This information is currently combined with the Chicago Mercantile Exchange's pay and collect data, resulting in coverage of nearly 80% of the futures industry. Very shortly, all futures exchanges will be consolidated on a single daily pay/collect information system. In addition, the Options Clearing Corporation, which clears securities options, has agreed to share daily settlement information with the futures exchanges. Furthermore, the National Securities Clearing Corporation, which clears transactions for the securities industry, has been approached with respect to sharing relevant market data. Finally, discussions are ongoing with representatives of the banking community to provide some of this critical risk evaluation data to those who lend capital to the major market participants.

If a member firm has large pays in relations to its capital, the Office of Investigations and Audits will immediately determine the causes for such obligations, thereby enabling the Office of Investigations and Audits to determine on a daily basis the approximate financial condition of each clearing member firm.

Finally, by using the SAFE System, Simulated Analysis of Financial Exposure, the financial position and market positions of all clearing members are reviewed on a daily basis. The SAFE System, which is composed of more than 120 different visual screens, simulates market movements over various ranges and degrees of volatility to project the potential financial exposure of all member firms.

As the Brady Task Force report has concluded, the ability to reconstruct market trading activity is critical. The events of October demonstrate the need for all markets to have similar capability to that which currently exists in the futures market. It has become increasingly clear that the securities industry does not have the same quality of and immediate access to information such as is available to the futures markets. As a result, it appears to be difficult to detect possible instances of trading abuses in the securities markets, let alone provide for the detection of possible abuses across securities and futures markets.

The inability to have access to such market information is a critical deficiency in the securities market which must be improved before investor confidence in the integrity of the securities trading system can be assured.

C. Financial Integrity

During the week of October 19, no clearing member of the Chicago Board of Trade failed to meet any of its obligations to the Exchange. In fact, throughout the history of the Board of Trade

Clearing Corporation, no customer has lost any funds due to a default of a Board of Trade Clearing Corporation member. During the week of October 19, $5.5 billion in variation margin was paid to the Board of Trade Clearing Corporation by clearing members and immediately paid out by the Board of Trade Clearing Corporation.

The Chicago Board of Trade's Office of Investigations and Audits intensified its monitoring of the financial condition of member firms on Friday, October 16. Those monitoring programs continued during the week of the 19th and subsequent thereto, insuring that all member firms were able to meet compliance with minimum capital and segregation requirements.

D. Intermarket Communications

Throughout the week of October 19, Board of Trade officials were in close communication with other exchanges, federal regulators and White House officials. On October 19, CBOT officials were in New York preparing for a Board of Directors meeting to be held in New York the next day.8/ With the apparent stock market decline, the CBOT's President and Chairman were in constant communication with Exchange officials in Chicago regarding market conditions. In addition, contacts were made with the Chicago Mercantile Exchange, regarding activity in their marketplace. Additionally, Exchange officials conversed with senior White House officials regarding market conditions. Those officials encouraged the Board of Trade to remain open if at all possible.

On the evening of October 19, all Directors and officers returned to Chicago from the regularly-scheduled Board of Directors meeting in New York to better monitor the affairs of the Exchange. On October 20, numerous contacts were made throughout the day with other futures exchanges, the Chicago Board Options Exchange, the New York Stock Exchange and the Commodity Futures Trading Commission.

Members of the Office of Investigations and Audits were in close communication throughout the week of the 19th with the CFTC, the Chicago Mercantile Exchange, other futures exchanges, the Chicago Board Options Exchange, the New York Stock Exchange and the American Stock Exchange.

8/ Board meetings are normally held in Chicago. Ironically, the October 20 meeting was scheduled to be held in New York to facilitate an exchange of views and information between the New York and Chicago financial communities.

E. The CBOT Remained Open

In this period, and on October 20 in particular, many stock and stock index markets formally closed or were informally closed due to the paralysis of key market players. The Board of Trade, however, made the decision to remain open so as to fulfill its Congressionally-mandated functions of providing a market for the transfer of risk and a market in which free-market prices are discovered. This latter function proved of critical importance on October 20 when the Board of Trade's MMI stock index contract provided the sole line of communication for the financial community to express its confidence in the U.S. economy. Without the information communicated by this market, the U.S. financial system would have had to function in an already confused marketplace with even more informational uncertainty.

F. Price Limits (Circuit Breakers)

On October 20, an automatic trading suspension was imposed on the Board of Trade's U.S. Treasury Bond contract due to wide price movement in the contract. Futures trading suspensions are imposed by exchange rules to limit daily price fluctuations, i.e., price limits. Price limits have been a standard feature of futures contracts for over 50 years. Daily price limits are established by futures exchanges at levels that permit unconstrained trading within the normal price range of a commodity while providing for an automatic suspension if a market exhibits extraordinary price movement.

Price limits are a type of "circuit breaker" that was recommended by the Presidential Task Force on Market Mechanisms ("Brady") report. The CBOT proposed such limits for its stock index contracts in November, 1987, and they were put into effect on a permanent basis immediately following CFTC approval. All futures exchanges except one presently have imposed price limits on their stock index futures contracts. The sole exchange which has not imposed price limits, the New York Futures Exchange ("NYFE") - a wholly-owned subsidiary of the New York Stock Exchange - has declined to do so for the publicly stated reason that they are following the policy lead of their parent, the New York Stock Exchange.

Price limits expand the period required for major price moves. In so doing, they have two major benefits. First, they provide greater financial management capability to futures brokerage concerns by increasing the time available to collect funds and, thereby, enhance the financial integrity of the exchange. Second, price limits reduce the likelihood of temporary mispricing that may result from overreaction to new information by market participants.

Unfortunately, price limits also impose costs. Such limits artificially constrain market prices. Trade suspension means that futures prices will not reflect "true" economic value once price limits are reached. Furthermore, trade suspension means that individuals may be "locked" in or out of futures positions while the underlying market is freely operating. For example, if stock index futures markets had price limits in place on October 19th, futures trading would have been suspended for much of the decline in market prices. Lastly, price limits may direct business overseas. For example, on October 20, when CBOT Treasury Bond futures reached limit and therefore effectively closed trading, volume in London's competing market increased by 800 percent.

During the October market break, the NYSE also imposed a circuit breaker in the form of the discretionary trading halts that were called by specialists. Unfortunately, these discretionary halts create excessive uncertainty for market participants as to the basis for such a halt. This uncertainty can breed market panic as was witnessed upon the reopening of the Hong Kong Stock Exchange after its self-imposed trading halt and less dramatically in the U.S. market's reaction to what was interpreted as SEC Chairman Ruder's suggestion that NYSE trading might have to be suspended.

To work effectively, circuit breakers must be applied consistently in all markets. To forestall market panic, circuit breakers must be automatic and nondiscretionary. They should be imposed according to pre-set market rules rather than subjective, discretionary actions by a few individuals such as specialists that may have an economic interest in such action. The Chicago Board of Trade and the Chicago Mercantile Exchange have adopted price limits for their stock index contracts set at 5 to 6 percent of current market value.[9] (This equates to a market move of approximately 100-115 DJIA points.) The New York Stock Exchange currently is contemplating daily price fluctuation limits. Although the New York Stock Exchange proposal is still preliminary, hopefully the New York Stock Exchange will follow the lead of the futures exchanges and set coordinated limits at similarly responsible levels.

The consistent imposition of circuit breakers across markets will avoid the costs and uncertainties imposed by inconsistent closure of the various parts of this interrelated market. Although circuit breakers will still impose costs through inefficiency in market pricing mechanisms, the benefits from an expanded time frame for major market price moves and increased financial integrity of exchange transactions hopefully will outweigh this cost.

9/ The New York Futures Exchange, the New York Stock Exchange's futures subsidiary, and the Kansas City Board of Trade originally set the limits on their stock index futures contracts 50% higher or about 17 to 18 percent of market value. The NYFE, however, has allowed its temporary limits rule to lapse. Therefore, this wholly-owned subsidiary of the New York Stock Exchange currently has no price limits or any other form of circuit breaker. The KCBT, in contrast, has reduced its limits to levels comparable to those of the CBOT and CME.

IV. THE CHALLENGE OF FOREIGN COMPETITION

Foreign competition, particularly from Japan, has been felt in numerous U.S. industries. Foreign competition for the U.S. futures industry increased markedly in recent years. Futures exchanges have proliferated overseas and products offered by these exchanges have become more diverse as the benefits of futures markets have become better understood. In 1987, contracts at exchanges in Tokyo, London and Paris were in the listing of the top 11 futures contracts trading worldwide. In 1985, there were no foreign contracts on the list (see Table 1, immediately following).

The rate of growth of foreign markets has been explosive. Foreign futures trading volume has grown more than twice as fast as U.S. futures volume for the last two years (see Table 2, immediately following). Volume of government bond futures and options trading on overseas exchanges grew 100 percent from 1986 to 1987, and grew 1300% percent between 1985 and 1987 (see Table 3, immediately following). Treasury bond futures and options volume at the Chicago Board of Trade, while dynamic, grew at a much slower pace - 27 percent and 70 percent from 1986 to 1987 and 1985 to 1987, respectively. Volume of stock index futures and options trading at foreign exchanges exploded in 1987 (see Table 4, immediately following) while stock index futures and options trading at domestic futures exchanges fell slightly.

The conclusion is inescapable: foreign futures exchanges are challenging U.S. dominance.

An event during the week of October 19, 1987 graphically illustrates how rapidly foreign competition can move to take business from U.S. exchanges. On October 20, prices in the Chicago Board of Trade's Treasury bond futures market locked limit up. (Locked limit up means that the price reached the upper limit of the permissible daily trading range, as defined by the futures contract: trading outside that pre-determined range is prohibited within that day.) Less than 35,000 Treasury bond contracts were traded during the day session that day, as compared to an average of nearly 320,000 per day during the entire month of October (see Table 5, immediately following next page of text). Despite the well-known preference for the safeguards and market integrity provided by the Chicago Board of Trade and the financial integrity provided by the margin system of the Board of Trade Clearing Corporation ("BOTCC"), participants in the Treasury bond market sought risk management services elsewhere. Many sought these services in the Treasury bond futures market at the London International Financial Futures Exchange ("LIFFE") cleared by the International Commodities Clearing House ("ICCH"). Volume in LIFFE's Treasury bond futures contract, open only since June 1984, exploded to over 47,000 contracts on October 20, nearly eight times its average daily volume of approximately 6,200 contracts for the first ten months of 1987 (Table 5). Uncertainty about ICCH-cleared foreign markets stemming from the reported losses at the Hong Kong exchanges (in which ICCH holds an interest), lack of faith in

Table 1

THE TEN MOST ACTIVELY TRADED CONTRACTS ON FUTURES EXCHANGES; 1985, 1986, 1987

RANK	1987	1986	1985
1.	Chicago Board of Trade TREASURY BOND FUTURES	Chicago Board of Trade TREASURY BOND FUTURES	Chicago Board of Trade TREASURY BOND FUTURES
2.	Chicago Board of Trade TREASURY BOND OPTIONS	Chicago Board of Trade TREASURY BOND OPTIONS	Chicago Mercantile Exchange STANDARD & POORS 500 FUTURES
3.	Chicago Mercantile Exchange EURODOLLAR FUTURES	Chicago Mercantile Exchange STANDARD & POORS 500 FUTURES	Chicago Board of Trade TREASURY BOND OPTIONS
4.	Chicago Mercantile Exchange STANDARD & POORS 500 FUTURES	Chicago Mercantile Exchange EURODOLLAR FUTURES	Chicago Mercantile Exchange EURODOLLAR FUTURES
5.	Tokyo Stock Exchange JAPANESE GOVERNMENT BOND FUTURES	Tokyo Stock Exchange JAPANESE GOVERNMENT BOND FUTURES	New York Commodity Exchange 100 OUNCE GOLD
6.	New York Mercantile Exchange CRUDE OIL FUTURES	New York Commodity Exchange 100 OUNCE GOLD	Chicago Board of Trade SOYBEAN FUTURES
7.	Paris Financial Futures Exchange FRENCH GOVERNMENT BOND FUTURES	New York Mercantile Exchange CRUDE OIL FUTURES	Chicago Mercantile Exchange DEUTSCHEMARK FUTURES
8.	New York Commodity Exchange 100 OUNCE GOLD	Chicago Mercantile Exchange DEUTSCHEMARK FUTURES	Chicago Board of Trade CORN FUTURES
9.	Chicago Board of Trade SOYBEAN FUTURES	Chicago Board of Trade CORN FUTURES	New York Commodity Exchange 5000 OUNCE SILVER FUTURES
10.	Chicago Board of Trade CORN FUTURES	Chicago Board of Trade SOYBEAN FUTURES	Chicago Mercantile Exchange SWISS FRANC FUTURES
(11.)	(London International Financial Futures Exchange LONG-TERM GILT FUTURES)		

Table 2

ANNUAL GROWTH RATE
DOMESTIC AND FOREIGN FUTURES EXCHANGES

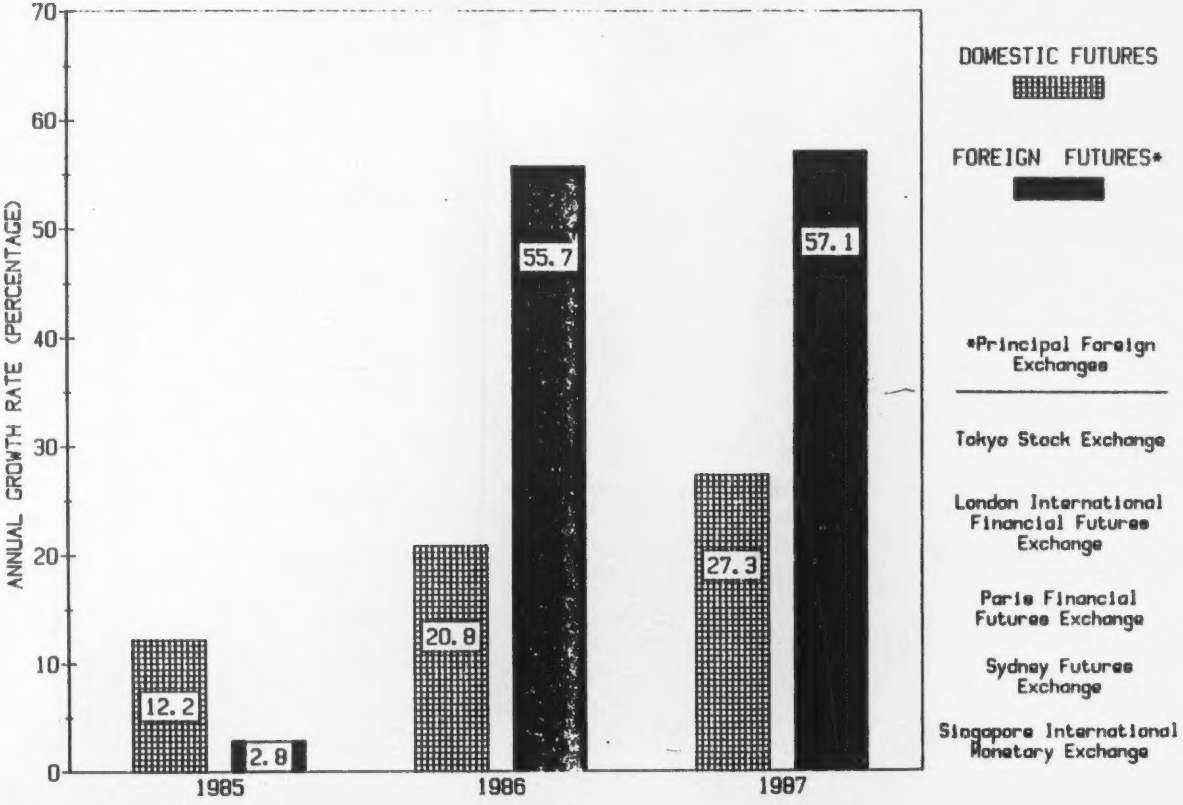

Table 3

ANNUAL VOLUME OF GOVERNMENT BOND FUTURES AND OPTIONS CONTRACTS TRADING ON FOREIGN FUTURES EXCHANGES; 1982-1987

EXCHANGE*	CONTRACT	1982	1983	1984	1985	1986	1987
				(Contracts)			
EOE	Dutch Guilder Bond Options	-	-	-	1,117,630	866,765	629,026
LIFFE	Long-Term Gilt Futures	28,091	526,215	777,722	687,216	2,655,209	7,035,729
	Long-Term Gilt Options	-	-	-	-	283,158	1,044,991
	Short-Term Gilt Futures	-	-	-	43,514	61,691	284
	U.S. T-Bond Futures	-	-	168,142	631,039	1,575,053	1,487,434
	U.S. T-Bond Options	-	-	-	-	53,741	55,593
ME	Canadian Bond Options	2,239	62,013	147,122	240,821	285,618	372,260
NZFM	5 Year Government Bond Futures	-	-	-	-	81,423	176,165
MATIF	French Government Bond Futures	-	-	-	-	1,663,453	11,904,167
SFE	2 Year Government Bond Futures	-	-	8,710	600	0	0
	10 Year Government Bond Futures	-	-	1,917	242,282	1,431,595	2,063,903
	10 Year Government Bond Options	-	-	-	6,249	183,197	373,416
	U.S. T-Bond Futures	-	-	-	-	7,262	2,176
SIMEX	U.S. T-Bond Futures	-	-	-	-	32,287	14,151
TFE	Long-Term Canadian Bond Futures	-	-	30,115	25,224	0	0
	Long-Term Canadian Bond II Futures	-	-	-	9,036	2,315	1
	Mid-Term Canadian Bond Options (8 3/4%)	-	-	-	-	244	184
	Long-Term Canadian Bond Options (11 3/4%)	-	-	-	6,309	39,389	5,663
	Long-Term Canadian Bond Options (9%)	-	-	-	-	3,833	19,532
TSE	Yen Bond Futures	-	-	-	452,553	10,502,717	18,261,332
TOTAL:		**30,330**	**588,228**	**1,133,728**	**3,462,473**	**19,728,950**	**43,446,007**

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* EOE: European Options Exchange; LIFFE: London International Financial Futures Exchange; ME: Montreal Stock Exchange; NZFM: New Zealand Futures Market; MATIF: Paris Financial Futures Exchange; SFE: Sidney Futures Exchange; SIMEX: Singapore International Monetary Exchange; TFE: Toronto Futures Exchange; TSE: Tokyo Stock Exchange.

Table 4

ANNUAL VOLUME OF STOCK INDEX FUTURES AND OPTIONS CONTRACTS TRADING ON FOREIGN FUTURES EXCHANGES; 1982-1987

EXCHANGE*	CONTRACT	1982	1983	1984	1985	1986	1987
			(Contracts)				
AFFM	Australian Leaders Portfolio	-	-	-	-	1,067	36
BFE	Blue Chip Index	-	-	-	-	135,287	91,544
	IBV Index	-	-	-	-	-	250,723
EOE	EOE Share Index Options	-	-	-	-	-	411,901
	Major Market Index Options	-	-	-	-	-	39,539
HKFE	Hank Seng Index	-	-	-	-	825,279	3,595,182
INTEX	Financial News Composite Index	-	-	-	-	2,488	24,963
LIFFE	FT-SE 100	-	-	73,590	89,308	123,961	469,780
	FT-SE 100 Options	-	-	-	-	2,945	9,111
NZFE	Barclay's Share Price Index	-	-	-	-	-	119,038
OSE	OSF 50	-	-	-	-	-	200,470
OM	Stock Index Options	-	-	-	-	16,098	6,724,679
SFE	All Ordinaries Share Price Index	-	180,014	237,011	284,148	464,475	624,699
	All Ordinaries Share Price Index Options	-	-	-	3,720	27,091	137,078
SIMEX	Nikkei 225	-	-	-	-	33,593	363,439
SOFFEX	Stock Index Options	-	-	-	-	-	1,843,362
TFE	TSE 300 Composite Index	-	-	18,014	25,050	51,491	14,327
	TSE 35 Index	-	-	-	-	-	238,296
TOTAL:		0	180,014	328,615	402,226	1,683,775	15,158,167

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* AFFM: Australian Financial Futures Market; BFE: Brazil Futures Exchange; EOE: European Options Exchange; HKFE: Hong Kong Futures Exchange; INTEX: International Futures Exchange (Bermuda); LIFFE: London International Financial Futures Exchange; NZFE: New Zealand Financial Futures Exchange; OSE: Osaka Securities Exchange; OM: Options Mesklarna (Stockholm, Sweden) SFE: Sydney Futures Exchange; SIMEX: Singapore International Monetary Exchange; SOFFEX: Swiss Options and Futures Exchange; TFE: Toronto Futures Exchange.

foreign clearing entities and preference for the historical margin performance of the Board of Trade Clearing Corporation probably kept LIFFE's volume from rising even higher.

Critically, traders in the cash Treasury bond market reported that bid-ask spreads widened four-fold on that day due to the absence of the competitive discipline provided by Chicago Board of Trade Treasury bond futures. This substantially reduced such traders' abilities to trade in the cash market efficiently and reinforces the value of futures trading to the economical and efficient marketing of the United States government debt.

The experience of October 20 demonstrates the vulnerability of domestic futures markets to international competition, even Chicago Board of Trade Treasury bond futures, by far the largest futures contract in the world. It shows the willingness of participants to take their business elsewhere to competitive substitutes. Market users are quick to move to competitive markets overseas if our futures markets cannot immediately provide cheap and efficient transaction and risk management services.

In spite of the Brady Task Force mandate to maintain competiveness of U.S. financial markets, numerous proposals have been circulated to alter the manner in which futures are traded. Meanwhile, in Japan, the Ministry of Finance announced in January, proposals for a new financial futures market and for a general broadening of Japanese participation in financial futures markets.[10/] The proposal sets the stage for the introduction of U.S. Treasury bond futures at the Tokyo Stock Exchange ("TSE") later this year and for additional stock index futures trading in Japan this spring. It is interesting to note that volume of the only stock index futures contract currently trading in Japan, the Osaka Stock Futures 50, has increased five-fold since September. Rather than fleeing the stock index futures market, the Japanese have rushed to it. They have discovered the benefits of stock index, and other, futures markets, and are moving quickly to develop these markets domestically. (See Table 6, immediately following).

To fully appreciate the Japanese threat to Treasury bond futures trading in the U.S., it is useful to examine the growth in Japanese purchases of longer term U.S. government securities in the last five

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[10/] Japanese Finance Minister Kenichi Miyazawa on January 25, 1988 before the Japanese Parliament stated, "Regarding the expansion of futures markets, we plan to promote a stock futures market, create a new financial futures market and de-regulate overseas trading of financial futures."

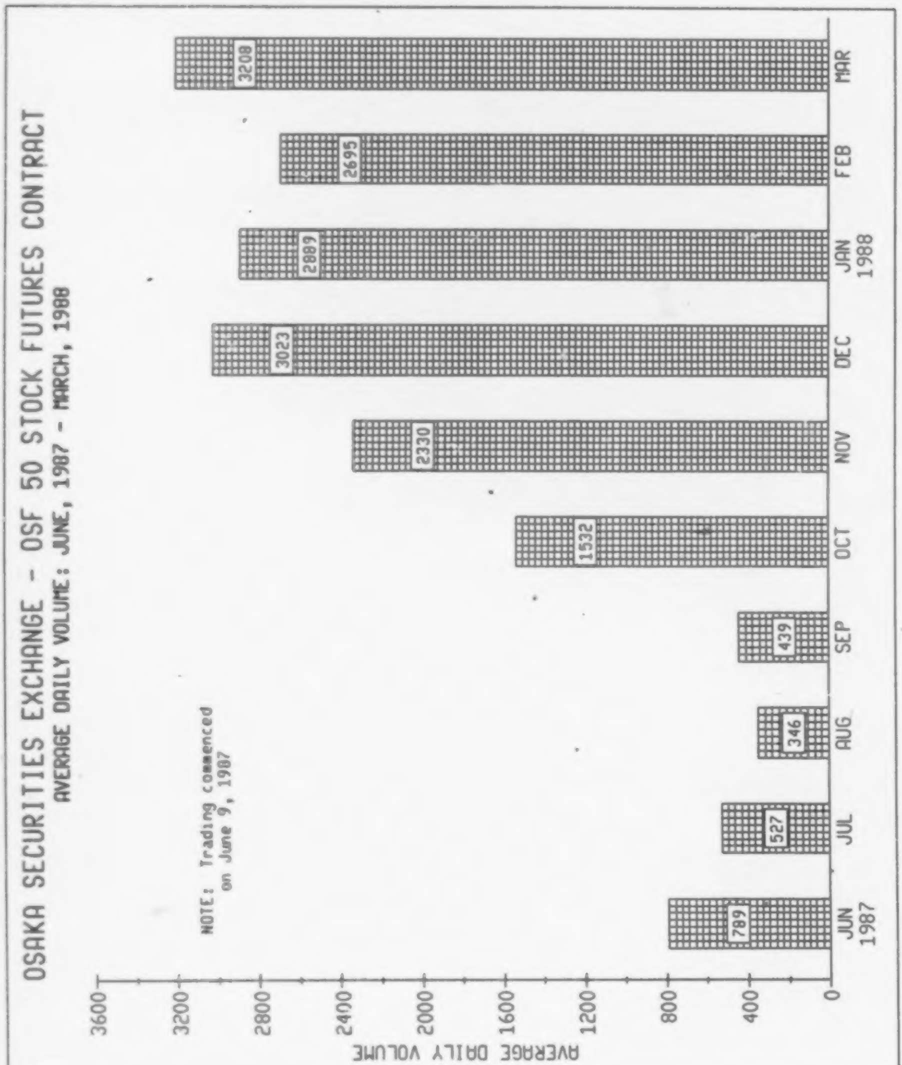
Table 5

FOREIGN COMPETITION

Treasury Bond Futures Volume; Chicago Board of Trade
and London International Financial Futures Exchange
October 1, 1987 to October 30, 1987

	Chicago Board of Trade			LIFFE
Date	Night Session	Day Session	Total	Total
10/01/87	23,466	261,753	285,219	5,970
10/02/87	9,047	368,448	377,495	995
10/05/87	10,963	267,009	277,972	4,336
10/06/87	7,623	244,259	251,882	7,890
10/07/87	10,522	362,278	372,800	8,525
10/08/87	10,626	442,189	452,815	6,891
10/09/87	15,363	308,742	324,105	7,775
10/12/87*	10,370	84,586	94,956	3,391
10/13/87	14,887	278,275	293,162	6,317
10/14/87	12,100	511,021	523,121	14,482
10/15/87	19,270	640,217	659,487	12,538
10/16/87	21,967	365,532	387,499	2,461
10/19/87	28,892	483,949	512,841	13,503
10/20/87**	28,269	34,487	62,756	47,082
10/21/87	44,552	311,180	355,732	15,955
10/22/87	13,933	366,911	380,844	12,465
10/23/87	28,266	323,253	351,519	16,079
10/26/87	19,203	272,409	291,612	12,529
10/27/87	20,937	280,655	301,592	13,398
10/28/87	15,270	337,029	352,299	10,900
10/29/87	15,542	224,911	240,453	9,537
10/30/87	17,400	220,040	237,440	7,352
Average Daily (Year-To-Date)	12,385	286,505	297,121	6,186

* Columbus Day; Banks and some financial institutions closed.
** Day session locked limit up.



OSAKA SECURITIES EXCHANGE - OSF 50 STOCK FUTURES CONTRACT
AVERAGE DAILY VOLUME: JUNE, 1987 - MARCH, 1988

years. In 1983 the Japanese bought $9.4 billion of these securities. In 1984, the amount doubled to $18.6 billion. In 1985 and 1986, Japanese purchases rose to $95.2 billion and then $329.1 billion, respectively. Last year, in only the first nine months, Japanese purchases of longer term U.S. government securities were over $400 billion. The Japanese, by pursuing plans to launch a U.S. Treasury bond futures contract at the TSE, perhaps as early as year-end, are making it possible for those purchases to be hedged in Japan, rather than the U.S.

While the foreign threat to U.S. futures markets has grown, the threat to our securities markets has grown as well. Two years ago, there were ten U.S. stocks trading on the Tokyo Stock Exchange; now there are 50. In London, there are 200 U.S. stocks listed. Foreign purchases of U.S. stocks grew from $80.5 billion in 1985 to $146.0 billion in 1986 to $190.7 billion in only the first nine months of 1987. Foreigners find our stocks attractive yet they also appear to want to trade them on their own soil.

U.S. futures markets are highly efficient and are still the envy of the world. If, however, they become cost inefficient, foreign futures markets are poised to take business away. The U.S. has lost leadership in the automotive, steel and electronics industries; we could lose our leadership in the global futures industry as well.

V. RESPONSES TO PROPOSALS FOR REGULATORY CHANGE

A. Introduction

Despite the flawless performance of the Board of Trade's markets, the events of October have caused every exchange, including the Chicago Board of Trade, to review and reevaluate market mechanisms. Since October 19, the Board of Trade's President and Chairman have been meeting on a frequent basis with representatives of the futures industry and the securities industry as well as legislators regarding the interaction of the securities and futures marketplaces. In particular, a meeting was held with senior officials of the New York Stock Exchange in an attempt to formulate a consensus on the future direction of possible market harmonization.

As a result of these meetings and subsequent deliberation, the Board of Trade has reached several conclusions regarding regulatory changes which will best equip all markets to address volatile conditions such as those which arose last October.

B. Jurisdiction

Subsequent to the October market events, there has been continuing discussion regarding the extent of SEC and CFTC jurisdiction. Questions have been raised as to the advisability of altering those agencies' jurisdiction with proposals put forth to merge the two agencies, surrender CFTC jurisdiction over stock index futures to the SEC, surrender SEC options jurisdiction to the CFTC, or subject both the SEC and the CFTC to the oversight of a third federal agency. Indeed, the report of the Brady Task Force recommends that an "overarching" federal agency, such as the Federal Reserve Board, be authorized to oversee the performance of the securities and futures markets and to coordinate those regulatory issues which have intermarket implications. We believe that there are better means to address the critical issue of intermarket coordination without the adverse consequences implicit in such proposals.

As the Brady Report confirmed, the futures and securities markets are an interrelated market, but with different functions and purposes. The very basis for CFTC jurisdiction over stock index futures lies in those functional differences between futures and securities markets. As we have previously stated, securities exchange markets provide a means for transferring stock ownership, thereby facilitating capital formation. Futures markets transfer price risk. The goals of securities and futures regulation differ accordingly and have fostered a different sort of regulatory expertise. Securities regulation governs the formation and secondary distribution of capital. Futures regulation promotes the transfer of price risk by parties who are in the business of producing, owning or distributing the underlying product. These distinct goals would be compromised by a single regulator. As the Report of the House Committee on Agriculture on the Commodity Futures Trading Commission's 1978 reauthorization states:

> "The Committee is of the view that jurisdiction over futures markets should reside in an agency such as the Commission whose regulatory role requires an economic expertise which focuses upon the risk-shifting and price-determining function that futures trading performs. Futures markets have not remained static and futures regulations have covered an increasing number of commodities as the benefits of futures trading have become more widely understood. The Committee does not believe that the public interest would be served by duplicating in one or more additional agencies regulatory authority over futures markets that presently exists in the Commodity Futures Trading Commission." (H.R. Rep. No 95-1181, 95th Cong. 2d. Sess. 1978, p.13)

The Brady Task Force properly concluded that a merger of the Commodity Futures Trading Commission and the Securities and Exchange Commission would tend to create less efficient regulation without conferring any foreseeable benefits upon the financial markets. However, its recommendation that the Commodity Futures Trading Commission and the Securities and Exchange Commission continue to operate within their separate jurisdictions under the oversight of a third agency suffers from the same flaw and should not be adopted. The addition of another layer of federal regulation over the financial marketplaces would only decrease market efficiency and increase regulatory costs.

While the Federal Reserve Board performed a vital function throughout October's market decline, involvement of the Federal Reserve in the oversight role discussed by the Brady Report is totally unworkable. In the first place, such an oversight role would divert the Federal Reserve from its primary function as the chief architect of the nation's monetary policy. Moreover, the Federal Reserve lacks the kind of expertise which would be required for such a role. Despite the Brady Report's emphasis on coordination as opposed to direct intervention, the regulatory issues, i.e., margin, clearing, information-sharing, trading halts, which allegedly require such coordination, represent critical operational details requiring day-to-day, front-line involvement. The insertion of the Federal Reserve in such a role would add an utterly new dimension to that agency's jurisdiction to the detriment of the nation's securities and futures markets.

As the Brady Task Force emphasized, improved intermarket coordination is and should be the goal towards which we must advance. The benefits of such improved intermarket coordination can be achieved through improved information sharing between the securities and futures markets and their regulators. Under existing legislation, the CFTC and, to a somewhat lesser extent, the SEC have adequate authority to deal with market emergencies. With improved communication as to matters of intermarket concern, the CFTC and SEC will have adequate means at their disposal to gauge the existence of an emergency and the proper means with which to address it.

Indeed, the SEC and the CFTC have coordinated their efforts to address matters of intermarket concern since the inception of stock index futures trading. For instance, the SEC has an established role in the process whereby stock index futures contracts are approved at the CFTC and exercises veto power over such contracts. Throughout the week of October 19, there was significant inter-agency and intermarket communication in reviewing market conditions.

The Chicago Board of Trade unreservedly supports the goal of improved communication and coordination between the various market segments. Within the futures industry, we have been a leading proponent of financial information-sharing among the various exchanges and spearheaded an effort to obtain industry-wide sharing of pay and collect information from the various clearing entities.

We also support increased cooperation and interaction between the securities and futures markets in the stock index area and propose that regular information sharing should be undertaken by the securities and futures markets on a formalized, regular basis. To this end, the possibility of an intermarket counsel to review information regarding trading activity in the stock index futures and stock markets should be undertaken. We believe the regular coordination of timely market information by such an intermarket group would address the goals enunciated in the Brady Report without installing a cumbersome, extra layer of regulation over delicate market mechanisms.

In this connection, we must be ever mindful of the world-wide competition which U.S. markets face. The Brady Report forcefully reminds us that the financial markets have become one global market. Nonetheless, there are competing marketplaces within that global market which are anxious to attract business which is currently done in New York and Chicago. We cannot afford to inhibit the growth and operation of U.S. financial markets with needless regulation.

Changes in the current regulatory structure should be carefully weighed against the possibility that U.S. business will seek asylum in unregulated foreign marketplaces. The goal of intermarket coordination can be met without the further erosion of U.S. market share. We urge the Congress to support the concept of formalized intermarket communication on issues of joint concern with the participation of the SEC, the CFTC, and the relevant stock index futures and stock markets as a superior alternative to the creation of a third or super-agency.

C. Price Limits (Circuit Breakers)

The Board of Trade imposed price limits on its Major Market stock index contract immediately following the October 1987 markets even prior to the formation of the Brady Task Force. Those maximum daily fluctuation limits are equal to 20 points, or approximately 5% of the current value of the contract. The imposition of such limits would make it impossible for the futures markets to move in excess of those limits (equivalent to approximately 100 DJIA points) within one trading day. If the market closes at its limit for two consecutive days, the limits would be expanded by 150%.

However, the Board of Trade recognizes that circuit breakers which are not coordinated across all the markets do not meet the objectives of the Brady Task Force recommendations. Therefore, we have been an integral part of discussions with the securities exchanges, regulators and the President's Working Group on Financial Markets to achieve coordinated circuit breakers across all markets, futures, options and securities. Currently, these discussions are focused upon development of a form of "intraday" price limits (first suggested by Brady Task Force staff) which would institute a market "pause" for a specified period (perhaps one hour) when the market declines by a specified percentage of market value as represented by some commonly understood measure (such as the DJIA). Once these limits were hit, the markets would all "pause" together and then reopen together with expanded limits (and, in the case of futures, increased margins). These limits could be established as a series of "fall back" positions or "traffic lights" which could serve to buffer the effects of a sudden, severe market decline such as that experienced on October 14-19, 1987.

D. Margins

The markets of October have generated much discussion - and much misinformation - concerning the subject of margins.

Initially, futures margins and securities margins have in common only a name: they are two entirely different things. Futures margins are a performance bond paid immediately and a variation payment adjusted to the market daily. Securities margins are the permissible level of credit financing on the purchase of stock due up to seven days after the purchase or even later with extensions. Futures margins are akin to home insurance premiums while securities margins are analogous to the amount of the house's purchase price being financed by a mortgage. If homeowners were required by law to pay insurance premiums equivalent to half or even twenty-five percent of the value of their house, no one would insure. Similarly, if futures margins are raised to arbitrarily high levels, market users (such as pension funds, banks and grain elevators) either will not insure their risk or will use foreign futures markets to do so.

Moreover, the prevalent understanding that securities margins are 50% and futures margins are 10% is simply erroneous. Securities market margins for professional investors generally are 20-25% and for certain professionals can have an effective rate of 0% at times. Futures margins for positions held any length of time may vary from 3-50% or more. Additionally, there is no evidence that increased margins reduce the adverse effects of excessive speculation. Futures markets have a mechanism for addressing such effects; Congressionally-mandated speculative position limits. Thus, increasing futures margins to dampen excess speculation and/or to achieve parity with securities professional investors would be a step premised on totally faulty assumptions. Moreover, it would increase the expense of using U.S. futures markets resulting in unhedged positions and/or the export of domestic financial markets to foreign markets eager to capture U.S. business and unburdened by misguided regulation.

The difference between stock and futures margins reflects the fundamentally different purposes of the two types of markets. Stock markets are investment and speculative markets that provide forums for buying and selling stocks. In contrast, futures markets are risk-transfer markets that permit the shifting of price risk through futures contracts. The functional difference between these markets is akin to that between the purchase of a home and the purchase of home insurance. When purchasing a home, a buyer will typically acquire home insurance to protect against a decline in the home value due to physical loss. Insurance transfers the risk of home ownership to the insuring company. Similarly, futures markets provide a vehicle to transfer the price risk associated with the ownership of securities and other commodities to other individuals. Futures contracts can offset declines in the market value of securities held in a portfolio.

A credit margin on a stock purchase is a down-payment, a percentage of the actual purchase price, made by the purchaser to the party who loaned him the remaining funds to purchase the stock. The lender requires this down-payment to offset any losses that might occur if the purchaser defaults on the loan and the stock is sold as collateral. Upon the down-payment of the credit margin, full ownership rights in the purchased stocks are transferred to the purchaser.

Margins are required for futures as a performance bond. They do not involve any extension of credit. Furthermore, no collateral exists in the futures markets to secure a margin deposit. Margins must be deposited by both buyers and sellers when entering the futures markets. Most importantly, futures positions are settled on a daily basis by distributing losses or gains due to price changes. The payments flow through the clearinghouse immediately, thereby insuring liquidity in the system. If funds deposited as performance bond margin have been reduced as a result of adverse price moves, additional performance bond margin payments are required. Deficits are not allowed to accrue; losses of clearing members must be paid off daily. Thus, futures performance bond margins ensure that cash is available daily to settle each day's market obligations in full.

To simply look at an initial futures margin level of 10-12%, which merely permits a position to be established, and compare that to a 50% margin in securities markets, which permits actual ownership of stock by a nonprofessional, public purchaser, ignores the daily settlement of futures contracts and is totally misleading.

It is also misleading because securities market professional investors do not pay 50% margins. Under the Federal Reserve Board's Regulation T, only public customer margin down payments are at the 50% level. What is required of other market participants is not always readily clear. Broker dealers, market-makers, odd-lot dealers and specialists - the securities market professional investors - are required to post "good faith" margin, generally 20 to 25% under NYSE Rule 431. It is our understanding that this requirement can be reduced in several ways (including sales to other broker dealers and election of alternative capital structures) to levels of 15% or even lower.

Moreover, margin in equity securities is not due until settlement or seven business days after purchase (up to 28 days is possible with extensions) in contrast to futures margins where initial margin is due to the clearinghouse immediately, and variation margin adjusted daily thereafter as long as the position remains open.

Let us examine an actual example of futures and securities margins to exemplify the differences in the two systems.

If a market professional purchased one Chicago Board of Trade Major Market Index futures contract on Wednesday, October 14, 1987, he would have had to pay an initial futures margin of $4,500 that day, in advance of the transaction. If, instead of purchasing the futures contract, he had purchased the actual portfolio of stocks comprising the Major Market Index, his initial stock margin requirement would be at the 20-25% margin level for "professional market participants" according to the Brady Commission. However, the market professional would not have been required to pay margin until 7 days after the stock was purchased.

Table 7 (immediately following), shows that over the next 4 days, although no margins were required on the stock portfolio positions, the professional would have been required to pay a large percentage of additional cash into his futures margin account.

Since his futures account would have been settled daily, he would have been required to pay an additional $4,500 in cash after the close of trading on Wednesday, the 14th, because the value of the contract declined by that amount during that trading day. In contrast, the margin required on his portfolio of actual stocks as a result of the adverse market move would have been zero; stock margin would not be required for another 7 days.

On Thursday, October 15, he would have been required to pay an additional $2,350 in cash into his futures margin account as a result of the price drop that day. The margin required on the actual stock portfolio remains at zero. No stock margin would be required for 6 more days.

On Friday, October 16, a further price drop demands another $5,525 payment in cash into his futures margin account. The required stock margin remains at zero. No stock margin would be required for 5 more days.

On Monday, October 19, the extremely sharp market break would have required a further $27,125 deposit into the futures margin account. No stock margin would be required for 4 more days.

By the opening of trading on Tuesday, October 20, he would have paid a total of $46,500 into his futures margin account, 51% of the value of his position on that day or over 37% of the value of the position based on the original purchase price. At this point, the purchase of actual stocks would still not be cleared and no margin would be required for 3 more days.

Table 7.

Margin Comparison: One Futures Contract Position of the Major Market Index (MMI) vs. One Stock Portfolio Position of MMI Component Stocks

Note: One MMI futures contract was purchased on October 14, 1987, at a price of 494.50 points, or $123,625.00.
One portfolio of MMI component stocks equal in value to one MMI futures contract was purchased on October 14, 1987, at the same price level, 494.50 points.

			Futures Margin Account			Stock Margin Account	
October 14-23 1987	Closing Market Value of the Position	Daily Change in the Value of the Position	Accumulated Paid-In Margin at Opening of Trading	Accumulated Paid-In Margin as a Percent of the Day's Closing Market Value	Accumulated Paid-In Margin as a Percent of the Original Purchase Value	Accumulated Paid-In Margin at Opening of Trading	Accumulated Paid-In Margin as a Percent of the Day's Closing Market Value
Wednesday	$119,125.00	–$ 4,500.00	$ 4,500.00[1]	3.78%	3.64%	0	0%
1. Thursday	$116,775.00	–$ 2,350.00	$ 9,000.00[2]*	7.71%	7.28%	0	0%
2. Friday	$111,250.00	–$ 5,525.00	$11,350.00	10.20%	9.18%	0	0%
3. Monday	$ 84,125.00	–$27,125.00	$16,875.00	20.06%	13.65%	0**	0%
4. Tuesday	$ 91,125.00	$ 7,000.00	$46,500.00[3]	51.03%	37.61%	0	0%
5. Wednesday						0*	0%
6. Thursday						0	0%
7. Friday						Initial Margin Payment Required (Day 7)	

*Position Cleared; same day as transaction in futures, 5 days after transaction in stock market.

**Cumulative market losses of $39,500.00 for four days exceed the value of an initial 25 percent margin ($30,906.00), not required to be paid for four more days.

Loss October 14	$ 4,500.00
Loss October 15	2,350.00
Loss October 16	5,525.00
Loss October 19	27,125.00
Cumulative losses, four days	$39,500.00

[1] Initial Margin Deposit of $4,500.

[2] $9,000 = $4,500 Initial Margin Deposit + $4,500 loss in value.

[3] Margin requirements increase to $7,000 from $4,500

Additionally, at this juncture the 32 percent (or $39,500) decline in the value of the stock portfolio would have exceeded the 25% original stock margin call of $30,906. The portfolio manager's stock broker would have reason to be extremely concerned. Even if the necessary margin money was, in fact, received 3 days hence, the account was already $8,600 in deficit.

To keep performance risk low, futures markets have developed efficient systems for the rapid collection of margins. The foundation of these systems is a third party clearing organization, the "clearinghouse", which assures the financial integrity of each trade. The clearinghouse requires that all futures trades be submitted for clearing through its member clearing firms. Parties to a futures contract are responsible for making performance bond margin payments to clearing members. These clearing members are in turn responsible for making performance bond margin payments to the clearinghouse based on their customers' and their own positions. Membership in the clearinghouse is limited to firms that meet stringent financial requiremehts. The financial survival of the clearing members as well as their legal obligation to the clearinghouse creates strong incentives to assure the prompt collection of margin payments by the clearing firm.

The daily settlement process of futures demands speed and flexibility in the setting of performance bond margins so that the overall goal of minimizing risk, including default risk, can be met. For this reason, performance bond margins are set by the exchanges through committees which are able to assess and respond quickly to changing market conditions. These committees, comprised of members with considerable experience and expertise, can meet at a moment's notice to examine the adequacy of performance bond margin levels in light of current market volatility and can change such levels to reflect daily price changes. For example, over two hundred performance bond margin changes were made in 1987 at the Chicago Board of Trade.

In contrast to futures, stock transactions are not designed to minimize risk; therefore, rapid margin collection has not been the central concern. Consequently, stock trades are settled over a five day period and margin payments are generally not due until settlement or seven days. Stock credit margin levels, which have been set by Federal regulatory authorities, are seldom adjusted and show little response to changing market conditions. For example, initial stock credit margin levels have not changed since 1974.

Some commentators have suggested that higher margins reduce a markets' volatility by discouraging excess speculation. There is no empirical evidence to support the argument. Insight into the effect of credit margins on price volatility is offered in a recent study by the Federal Reserve Board. With regard to stock prices, its study noted:

> "The behavior of stock prices since the enactment of margin regulation also does not support the argument that controlled margin trading will tend to reduce stock price volatility. Despite the relatively high federal margin levels and the very low levels of margin credit since the early 1930s, and the significant changes in the nature of the call loan market, stock prices have continued to be about as volatile as they were in the 50 years preceding margin regulation. Also, evidence on the behavior of stock prices around the time of margin changes suggests that such actions may have had little impact on stock prices, a finding that also casts some doubt on the importance of margin ratios for stock prices."11/

There is no reason to believe that the same conclusions would not hold for futures prices.

Moreover, the futures industry is the only financial marketplace which has Congressionally-mandated speculative position limits to perform the express function of reducing excess speculation. See 7 U.S.C. Sec. 4a. These limits are applicable to all market participants. Exceptions are granted only upon application and verification that the positions of the participant are for the purpose of hedging. Thus, there is no need to even consider margin control as a means to curb speculation in futures markets.

If implemented, a proposal to raise futures margins could irreparably harm the futures markets and significantly raise risk in financial markets. Margin costs represent a key variable that must be considered in using a futures contract on an exchange. An increase in margin requirements increases the cost of futures trading. Potential market users will be discouraged from using the futures markets by such a cost increase, thereby reducing market liquidity and the benefits of the futures markets to the economy. The economy will be riskier and potentially less stable as firms and individuals leave major risks unhedged.

Furthermore, if implemented, the costs imposed by these futures margin proposals would drive market participants to off-exchange and foreign markets that have few or no regulations (including margin requirements) and that compete with domestic exchanges offering risk management services in a regulated environment. An unmargined, unregulated off-exchange trade in risk-shifting instruments generates far greater risk both to individual firms and to the entire financial marketplace.

11/ Board of Governors of the Federal Reserve System, A Review and Evaluation of Federal Margin Regulations, December 1984, page 167.

For example, today the Board of Trade's Treasury bond futures contract is the largest traded futures contract in the world. This contract is the envy of the financial futures industry. However, the identical contract is traded in London, Sydney, Singapore, and soon in Tokyo. The governments of Japan and Great Britain have dedicated themselves to making their markets the center of world futures trading. With these government mandates backing these foreign markets, any regulatory change which increases the trading costs or impairs the market efficiency of the Treasury Bond contract will immediately cause investors to simply push a different telephone button on their trading desk and take their business overseas and/or the foreign investor to no longer enter orders in Chicago. The data contained herein (See Table 5) which shows an eight-fold increase in London Treasury Bond futures volume when the Board of Trade bond contract was locked up-limit on October 20, 1987, is but one small - yet graphic - illustration of this undeniable fact.

Equally harmful and without merit are proposals to vest control over stock index futures margins in an existing federal agency, such as the Federal Reserve Board, or a newly created agency. Initially, the Federal Reserve Board has authority regarding stock margins because those margins involve the extension of credit. Credit regulation is one of the principal responsibilities of the Federal Reserve System. However, futures margins involve no extension of credit. In fact, no collateral exists to secure a futures margin deposit. Therefore, they are not a principal part of the Federal Reserve Board's expertise or authority. Indeed, in testimony before the Senate Committee on Banking, Housing and Urban Affairs, FRB Chairman Greenspan testified that he did not believe the FED should have this responsibility.

Moreover, the exchanges, and not a federal agency, are in the best position to adjust margins quickly and efficiently in response to changing market volatilities. Federal regulators cannot have the same direct and immediate access to market information as exchange members who actively trade the markets, nor can they draw on the members' and exchanges' unique market expertise when analyzing such information to determine whether margin adjustments are necessary. The exchange clearinghouses' strong economic incentive to set appropriate margins, specifically, the incentive to minimize the probability of market disruption due to default, would be greatly reduced or lost. The exchanges have flexible systems in place that enable them to react immediately when the risks of participating in the market are suddenly increased. It is unlikely that a federal regulatory body would be able to respond as promptly. What is likely is that a regulatory body would establish unnecessarily high margins to compensate for its inability to respond quickly to changing market conditions and take insufficient account of costs imposed on users of the market.

In sum, futures margins are currently meeting their objective of ensuring market integrity. Proposals to mandate futures margin increases will not reduce price volatility but will only increase trading costs. Increased trading costs reduce the utility of futures markets for risk management, thus reducing their benefit to the economy as a whole while spurring the growth of unregulated off-exchange risk management substitutes outside the surveillance of exchanges or government regulators. Furthermore, foreign markets in London and Tokyo which compete with United States futures markets and which have copied United States futures markets are more than eager to take away our domestic futures business if it becomes the least bit non-competitive for any reason.

The Brady Task Force Report directly supports several of these factual premises. Initially, the Commission recognized that "... the concept of margins on futures differs fundamentally from that of margins on stock investments." Brady at 64. The conclusion was supported long ago by the New York Stock Exchange.

> "Often futures market margins are assumed to be the same as stock market margins. In fact, however, they are quite different."[12/]

Moreover, the Brady Report found that futures margins performed their primary function of risk management well during the October markets.

> "Despite low margin requirements, the financial performance control as part of futures margins has operated in a sound and effective manner on an intramarket basis." Id.

However, the Brady Report made a suggestion that futures margins need to be "consistent with" securities margins due to the interrelated nature of the two marketplaces. Brady at 65.

As we have already discussed, one cannot simply take futures initial margin levels, ignore the effect of daily variation margin payments, and state categorically that securities margins are higher or better than futures margins. Moreover, given their different functions (insurance premiums vs. financed purchase payment), futures margins economically should be at lower levels. Therefore, at current initial margin levels, futures and securities margins presently are consistent.

[12/] Statement of Frank J. Jones, Executive V.P. and CEO, New York Futures Exchange, a wholly-owned subsidiary of the New York Stock Exchange, at joint Hearings before the House Subcommittee on Oversight and Investigations and Telecommunications, Consumer Protection and Finance, June 7, 1982 at 452.

Interestingly, the Brady Report suggestion of "consistency" between the two may be facilitated by a suggestion made by the Task Force: implementation of a form of cross-margining. The concept of cross margining encompasses the reduction of margin levels given to a "hedged" position which reduces or manages the risk of the position. For example, if someone holds twenty-five blue-chip stocks in a portfolio and hedges the value of those premiums by taking a short position in the MMI stock index options or futures market, the risk of loss from owning those stocks has been greatly reduced. Thus, the risk to the interrelated markets of a decline in the value of the stocks resulting in the owner not being able to fully fund the margined stock position is greatly reduced and a reduced margin level is justified. It should be noted, however, that cross-margining would reduce the flow of funds in the interrelated market system, but at the price of having fewer funds in total available in case of a default.

The futures industry has been working to achieve a form of cross-margining for some time. The Board of Trade Clearing Corporation does so in certain markets to some degree already. Moreover, some form of cross-margining of futures and options positions is a critical feature of the recent joint venture agreement between the Chicago Board of Trade and the Chicago Board Options Exchange. Thus, private sector implementation of cross-margining has already begun and will continue; the concept need not require any legislative action.

In sum, arbitrarily increasing futures margins will result in futures trading going to less expensive, foreign markets. One of the mandates to the Brady Task Force was to suggest methods to assure free, fair and competitive U.S. financial markets. We cannot forget that goal in any discussion of potential legislative action.

E. Clearing Mechanisms

Another area of much discussion is that of the clearing and credit mechanisms of the marketplaces. The Brady Task Force recommended that clearing and credit mechanisms need to be unified to reduce the chance of financial gridlock and the attendant risk to the financial system. Brady at 64. Despite the seemingly insurmountable problems inherent in having one "common clearing" entity to all trades, the futures industry has been moving toward consolidation of clearing and credit information and common processing for many years. Additionally, several changes can now be made to expedite the goal of improved clearing and credit mechanisms.

The Board of Trade and Chicago Mercantile Exchange clearinghouses (which together account for approximately 80% of the U.S. futures trades) have for years exchanged daily pay/collect information, the data which details the daily margin payments throughout the system.

Additionally, although not yet implemented, all other domestic futures exchange clearinghouses now have agreed to join this system. The Options Clearing Corporation (the sole clearinghouse for U.S. exchange-traded securities options) recently also has agreed to join in this exchange of critical data. The National Securities Clearing Corporation (the principal clearing entity for securities trades) has been asked to join in this information sharing. Additionally, representatives of the major banks which extend credit to major market participants have been contacted regarding their participation in sharing this vital risk analysis data. Thus, the detailed data on the critical daily flow of funds among member firms will soon be shared by most of the intermarket clearing entities and could soon be shared by all.

While great strides have been made to achieve common processing of all futures trades, total unification of all clearing in all related markets remains a complex undertaking fraught with problems which may result in greater danger to the ultimate solvency of the financial markets than currently exists. Consolidating all clearing in one entity reduces the number of independent risk managers thereby possibly decreasing efficient risk management. It also would centralize the economic loss due to a market participant's potential default thereby potentially reducing the financial solvency of the system. By way of contrast, the existing system of "compartmentalization" may be more prudent. Additionally, settlement and clearing procedures vary enormously even within the futures industry itself. Moreover, while futures and options settle all trades daily, securities settle on a five business day basis; reconcilation of settlements must be made before discussion of consolidating securities clearing with futures and options clearing can even begin. Thus, common clearing is not achievable with the simple stroke of a pen, even if it were certain to be a desirable goal.

As previously mentioned, a form of what is loosely referred to as "cross-margining" is already in existence at the Board of Trade and is an integral part of our joint venture agreement with the Chicago Board Options Exchange. This concept could be expanded across the various financial marketplaces. However, while such a margining approach may aid the flow of funds by reducing the amount of funds in the system, that reduction of funds in the system may increase the risk of insolvency. Therefore, careful study of any cross-margining concept must be done before there can be any final assessment of its value.

There are, however changes which can and should be made to strengthen the clearing and credit mechanisms. The CBOT proposes that all futures and securities options clearing organizations adopt a system of daily collects as well as payment upon request. Such a system would go a long way towards reducing the credit demands on the system and substantially reduce the spectre of financial gridlock which the Brady Report raised.

Solvency of the entire futures system could be enhanced greatly by adoption of the risk-based capital rule proposed by the Chicago Board of Trade and the Chicago Mercantile Exchange and currently pending before the Commodity Futures Trading Commission. Additionally, all bank and financial exchange holidays should be coordinated. These changes, in conjunction with those already in place and in progress can go far toward avoiding the risks of financial gridlock.

To best understand these recommendations, one first needs to understand how futures clearing, particularly at the Chicago Board of Trade, is currently done.

Contracts traded on a futures exchange are cleared through a clearing organization (the "clearinghouse") which assures the financial integrity of each trade by becoming the buyer to each clearing member seller and the seller to each clearing member buyer. In essence, the clearinghouse acts as a third party guarantor on all transactions. Trades are submitted to the clearinghouse through its member clearing firms, which act on behalf of the parties to the trades. The Board of Trade Clearing Corporation, established in 1925 as an independent entity, is the clearinghouse for all Chicago Board of Trade contracts.13/

The concepts of margin and daily settlement are unique to futures markets and fundamental to the financial integrity of the clearing process. Futures margins are a performance bond required of both sellers and buyers to guarantee that they will perform the futures contract unless the obligation to do so is offset by an opposite transaction. Coupled with the daily official settlement process, futures performance bond margins ensure that each day's market obligations are settled in full with cash. No credit is extended.

Daily settlement is a two step process which involves: (1) the daily (or, at the Chicago Board of Trade alone, the twice daily) determination of whether an account has sustained gains or losses by comparing the prices at which futures contracts in the account were entered with the contracts' respective settlement price14/ a process referred to as "mark-to-market"; and (2) the daily distribution of gains and losses based on this determination. Daily settlement of accounts occurs at both the clearing firm and clearinghouse levels.

14/ In 1986, the Board of Trade Clearing Corporation also became the clearinghouse for all contracts traded on the MidAmerica Commodity Exchange and the Chicago Rice and Cotton Exchange, which are affiliated with the Board of Trade.

15/ Settlement prices are established after each day's trading session and reflect market conditions at the close of the day's trading.

A customer is responsible to his clearing firm (typically a brokerage house such as Shearson or Merrill Lynch where that customer has a trading account) for performance of his other obligations under a futures contract; customers, therefore, must deposit margins with their clearing firms. Clearing firms, in turn, are responsible to the clearinghouse for performance on all contracts they submit for clearing. The clearinghouse does not look beyond the clearing firms to the parties to a futures contract for performance on the contract. The clearing firms, in essence, guarantee performance to the clearinghouse on all trades - customer, floor trader and proprietary. All trades must be submitted to the clearinghouse.

Clearing firms, therefore, must deposit margins with the clearinghouse, and are legally obligated to make these payments regardless of whether they have collected margin from their customers. For this reason, membership in the clearinghouse is limited to firms that meet stringent financial requirements.

Clearing firms are required by exchange rules to impose minimum margin requirements on their customers. Exchanges establish minimum margin requirements at levels sufficient to cover the probable risk of daily loss under market conditions existing at the time. Customers must make minimum margin deposits, known as "initial margin", when they enter the futures markets. Critically, when remaining customer margin falls below an exchange-specified maintenance level through the daily settlement process as a result of adverse price moves, the customer must deposit additional funds to bring the margin deposit back to the initial margin level. A clearing member may liquidate the futures positions of a customer who fails to meet a margin call for additional funds. A clearing firm may be disciplined by an exchange for failure to collect adequate margin in accordance with the exchange's rules.

While minimum margin levels are set by the exchanges, clearing firms can and normally do require margin deposits at substantially higher levels. Clearing firm margin requirements reflect not only price movements but the ability of a customer to meet the contractual obligations that would arise with an adverse price movement. A clearing firm's responsibility to the clearinghouse for a customer's obligations ensures an accurate assessment of a customer's creditworthiness, the establishment of appropriate margin requirements for each customer and the prompt collection of margin from each customer.

At the clearinghouse level, two types of margin are required from clearing firms: original margin and variation margin.

Original margin is the performance bond required when positions are established. As with exchange margins, original margin requirements are determined on the basis of probable risk of loss. Since there is no price risk associated with sales that are offset by identical purchases or vice versa, original margin at the Board of Trade Clearing Corporation is required only on a clearing firm's net long (purchases) or short (sales) position. Board of Trade Clearing Corporation original margin may be posted in the form of cash, United States government securities, and/or letters of credit issued by an approved bank. The clearinghouse segregates original margin deposits in a separate account. The clearinghouse may increase original margin requirements when market conditions warrant, and issue calls for additional original margin payments from selected members if conditions warrant. These funds remain in a separate pool as long as positions are open. The clearinghouse will draw upon these segregated original margin deposits only if a clearing firm fails to meet a variation margin call, a situation which has never occurred at the Board of Trade Clearing Corporation.

"Variation margin" is also known as "pays and collects". "Pays" refers to the funds that a clearing firm must pay to the clearinghouse daily to settle losses in the firm's account at the clearinghouse. Profits, or "collects", similarly are distributed daily from these fund payments. The Board of Trade Clearing Corporation requires variation margin deposits to be paid within one hour in cash; no other form is acceptable. The BOTCC issues calls for variation payments at least twice a day: once at 7:00 a.m., Chicago time, as part of the daily official settlement process; and once at 2:00 p.m., Chicago time.

No marketplace other than futures makes these daily mark-to-market variation margin collections (or, in the unique case of the Board of Trade Clearing Corporation, twice daily.)

A description of the Board of Trade Clearing Corporation's clearing operations illustrates the speed and efficiency with which margin obligations are determined and collected. The following steps are involved in this process:

1. Throughout the trading day, including the evening trading session[15], the Board of Trade Clearing Corporation processes and matches the day's trades. The night session is matched on a virtually continuous basis completed by 10:00 p.m. each night. The first full processing and matching process for the day and previous night's trading sessions are completed by late afternoon each day. After review by clearing members for errors, the final matched run is completed by 8:00 p.m., Chicago time, each day.

15/ The Board of Trade began offering an evening trading session in the spring of 1987 for certain financial contracts. An evening trading session is treated as the start of the following day's daytime session.

2. From the information generated by this matching process, the Board of Trade Clearing Corporation computes the original margin requirements for every clearing firm account on its books as part of the daily official settlement process. The Board of Trade Clearing Corporation also calculates the gains and losses experienced in each account as a result of price movements to determine the amount of variation margin, or "pays", required to settle losses and the amount of profits, or "collects", that the Clearing Corporation will pay out.

3. Original margin and pay and collect information is made available to clearing members and their banks before midnight, Chicago time, each night. An official call for original and variation margin based on this information is issued at 6:00 a.m., Chicago time, the following morning.

4. Clearing firms must pay to the Board of Trade Clearing Corporation all original and variation margin requirements by 7:00 a.m., Chicago time.

5. The Board of Trade Clearing Corporation disburses "collects" to clearing firm accounts that experienced a gain. These payments are made out of the variation margin payments received by the Board of Trade Clearing Corporation, resulting in an official zero balance of pays and collects each day.

6. At 2:00 p.m., Chicago time, each trading day, the Board of Trade Clearing Corporation performs a separate intra-day calculation of gains and losses based on the positions held by a clearing firm on the previous day and on all matched trades executed the previous night and prior to 1:30 p.m., Chicago time, on the current trading day.

7. After 2:00 p.m., Chicago time, the clearinghouse issues calls for variation margin to settle the losses calculated at 2:00 p.m.

8. A clearing firm must satisfy this intra-day call for variation margin payments within sixty minutes.

9. The Clearing Corporation pays out all gains at the request of a member firm as a result of this interday variation collection.

10. In periods of great volatility, the Board of Trade Clearing Corporation will perform additional intra-day calculations of gains and losses and require additional variation margin payments. Margin calls must be satisfied within sixty minutes. These extra variation payments are designed to insure collection of all losses due to market movements that may have occurred between regularly scheduled variation calls.

As illustrated, the Board of Trade Clearing Corporation maintains tight control over margins as prices fluctuate, thereby assuring that sufficient margin money will be on deposit at all times to preserve the system's financial integrity. The daily settlement process of futures demands speed and flexibility in the setting of performance bond margins so that the overall goal of minimizing risk, including default risk, can be met. For this reason, performance bond margins for customers are set by the exchanges through committees which are able to assess and respond quickly to changing market conditions. Similarly, original margin requirements for clearing firms are set by special clearinghouse margin committees with approval of the Board of Trade Clearing Corporation Board of Governors. These committees, which are comprised of exchange members who have unique and valuable market expertise, can meet at a moment's notice to examine the adequacy of performance bond margin levels in light of current market volatility and can change such levels to reflect daily price changes. The incentive to minimize market disruption due to default assures that appropriate margins levels are set. The Chicago Board of Trade made over 200 margin changes on over 100 separate occasions during 1987.

In sum, the futures markets have developed highly sophisticated, extremely efficient systems for the rapid collection of margins. These systems have met historically, and are currently meeting, their objective of ensuring market integrity. Since the formation of the Board of Trade Clearing Corporation in 1925, no clearing member has defaulted and not one cent of customer funds at the Board of Trade Clearing Corporation has been lost due to default.

Regardless of the efficiency of the futures margining system and the flawless record of the Board of Trade Clearing Corporation regarding defaults, the Board of Trade readily recognizes that improvements can be made to its clearing and credit systems.

First, the Federal Reserve wire should be available to financial market participants throughout the critical periods of the financial marketplace trading day, specifically 6:00 a.m. to 6:00 p.m. Eastern Standard Time. The Federal Reserve wire is the means by which the payments between and among financial market participants must flow. In times of great market stress such as that witnessed in October 1987, this flow of funds greatly increases as does the need for immediate transfer of funds to preserve participants' liquidity. Keeping the Federal Reserve wire open longer will help insure that funds will be in place where and when they are most needed even if unanticipated delays occur. While seemingly a modest proposal, the Board of Trade believes that had the Federal Reserve wire been open sooner and later during the week of October 19, 1987, what few flow of funds problems were encountered would have been diminished in severity if not eliminated entirely.

Also, since risk management is the key to financial solvency, basing capital requirements upon the risk of positions being held by a firm would better allocate the capital requirements of market participants. The Chicago Board of Trade and the Chicago Mercantile Exchange have proposed a revised, risk-based capital rule to the Commodity Futures Trading Commission for implementation in the futures industry. Adoption of such a rule would greatly facilitate the proper allocation of firm capital and encourage sound risk management.

Finally, all exchanges and the principal banks participating in the financial markets should coordinate planned closings for holidays. Having one linked marketplace open while another is closed presents a risk for any participant holding an intermarket position. Similarly, if payments cannot be made because banks are not open, the risk to the entire system is enormous.

Thus, the clearing and credit systems of the Chicago Board of Trade performed in an exemplary fashion during the week of October 19, 1987 as they have historically performed. We have nonetheless made specific recommendations as to ways in which all clearing and credit mechanisms can be improved. The adoption of such recommendations would result in a more financially sound, better integrated U.S. financial marketplace. For our part, we intend to take every step possible to achieve rapid implementation.

F. Chairman Leahy's Draft Legislative Proposal

In early March, Chairman Leahy made public a draft legislative proposal consistent with the Brady Presidential Task Force recommendation of creating one "overarching" federal agency to coordinate the few, vital intermarket issues identified by the Task Force Report. Chairman Leahy's proposal, the "Intermarket Monitoring Council Act," would establish a council comprised of the Chairman of the Federal Reserve Board of Governors, the Secretary of the Treasury, the Chairman of the Commodity Futures Trading Commission and the Chairman of the Securities and Exchange Commission. The Council's responsibilities would include coordination of Federal regulatory policy, including market and financial surveillance, for all stock, stock options, and stock index options, stock index futures and stock index futures options. The Council would meet at least monthly to review "matters within its jurisdiction." The Council would make recommendations to the FED, CFTC and SEC regarding "such actions as the Council deems to be appropriate" including such areas as financial requirements of market participants, margins and coordination with foreign regulation. The Council would also be authorized to study and report regarding unified clearing across the interrelated markets. The Council Chairman would also have authority to declare a market emergency and take any action "as may be appropriate to address the market emergency;" such order would be effective for only 72 hours unless three Council members extended its effect. Emergency declarations and actions would be subject to judicial review.

In view of all the progress to implement the spirit of Senator Brady's recommendations which the industry has already undertaken voluntarily, we do not see the need for any additional legislation at this time. Indeed, the objectives and specifics of Chairman Leahy's thoughtful draft bill have to a large extent already been implemented perhaps due in large part to the mere proposal of the bill itself. To add an additional layer of decision making, emergency declarations and possible judicial review of those actions is not necessary in view of the changes already in place. Moreover, granting a newly created agency such additional regulatory powers as rulemaking authority will necessarily reduce the agency authority granted by Congress to both the CFTC and the SEC. FRB Chairman Greenspan, CFTC Chairman Gramm and SEC Chairman Ruder have already testified before the Senate Banking Committee in opposition to any such dilution of jurisdiction.

While we understand the concern and intentions which motivate such proposed legislation, we feel that the actions of the private sector and existing regulators have addressed those concerns. Moreover, we will continue our efforts to improve the systems and procedures in place. We feel that these private sector efforts will lead to implementation of Senator Brady's most critical recommendations and further Chairman Leahy's objectives by strengthening the interrelations between the markets to the ultimate benefit of all market participants.

VI. ADDITIONAL ISSUES

A. Customer Order Frontrunning

One of the issues currently being discussed is the concept of frontrunning securities customer orders between the securities, securities options and futures markets. Hypothetical examples have been cited where customers of a firm execute transactions on a securities exchange. The firm handling the execution of the customer's transaction trades ahead of its customer's orders for its proprietary trading account in the securities options and/or futures market.

The CBOT has rules virtually identical to those existing in the securities industry which prohibit unjust and inequitable trading practices and which have been interpreted to apply to customer order frontrunning. Such trading activity could, therefore, be held to be in violation of CBOT rules. The CBOT does investigate for such violations and has investigations currently pending.

As was also explained earlier, the Office of Investigations and Audits has a very sophisticated program for detecting intra-market frontrunning, *i.e.*, activity occurring on the Chicago Board of Trade. However, the quality of trade data information existing in the securities markets is not as good as that which exists in the futures markets nor is it available in any meaningful time frame. Therefore, inter-market investigations are currently hampered by the lack of precise market data from the securities industry.

This deficiency could easily be remedied by improving the audit trail in the securities industry. Such information or the sharing of such information could then be coordinated among industry self-regulatory organizations such as already exists through the Intermarket Surveillance Group. The CBOT currently is working with the CFTC, SEC, CME, NYSE and other securities and futures exchanges to produce necessary improvements.

B. Role of the Specialist

The Brady Report appropriately raises several issues with respect to the performance of the specialist system at the New York Stock Exchange during the week of October 19. In many respects, the specialist system is the antithesis of the open outcry system under which futures markets operate. The specialist exercises broad control over the trading of an individual stock while in the futures market, a crowd of market makers compete in an auction-style manner. The justification for the creation of the specialist's exclusive franchise is the need to provide a stable and orderly market, while the emphasis on price discovery and efficiency in the futures markets mandates competing bids and offers.

The efficiency and reliability of the open outcry system is well established and received new confirmation during the recent market crisis. The Board of Trade's markets remained open throughout that turbulent period and its futures market professionals maintained an arena in which price discovery and risk transfer could occur. In stark contrast, however, the specialists at the New York Stock Exchange appeared overwhelmed by the volume and direction of trading and ceased to be an effective stabilizing force.

As the Brady Report showed, the specialists frequently failed to counterbalance severe selling pressure on October 19 and, indeed, nearly 30% were net sellers on that date. Likewise, on October 20, when the direction of trading was reversed, the Brady Report showed that specialists generally reinforced the market trends. Moreover, due to the inability of the specialists to create an orderly market, 87% of the stocks which compose the Dow Jones Industrial Average failed to open in a timely fashion on October 19 and 76% on October 20, thereby exacerbating market uncertainty. Thus, the Brady Task Force is correct in questioning whether specialist performance and capital justify the retention of a franchise that amounts to a virtual monopoly.

Questions regarding the adequacy of the specialist system have previously been raised. In a 1972 study of the New York Stock Exchange specialist system16/ conducted by the Securities and Exchange Commission in preparation for Senate hearings17/, the SEC

16/ Securities Industry Study (Part 4).

17/ Hearings before the Subcommittee on Securities of the Committee on Banking, Housing and Urban Affairs, U.S. Senate, Aug. 8 and 9 and Oct. 5, 1972.

reported that it had

> "...discovered a need for considerable improvement in the Exchange's procedures for surveillance of the financial status of specialists...[and] raised serious questions as to the adequacy of specialists' performance in days of stress and otherwise which require consideration and the opportunity for review by the NYSE." (p. 34)

The SEC further found a "disturbing" tendency on the part of specialists over a four-month period to be net buyers in a rising market and net sellers in a declining market. The SEC describes such behavior as "destabilizing" and in direct violation of the specialists' affirmative obligation to lend orderliness to the markets.

Moreover, in addressing the monopolistic nature of the specialist system, the SEC report states that:

> "More recently, the SEC has expressed its belief '... that the liquidity needs of individual and institutional investors can best be provided by policies fostering the development of competition among dealers who are specialists, market-makers and block positioners. Such competition will mitigate the very difficult problem which now exists of developing and enforcing rules designed not only to prevent specialists from abusing their privileged position, but also to motivate them to perform satisfactorily under widely differing circumstances and in light of varying risks and pressures'." (p.38)

Such criticism of the specialist system has been renewed in the wake of the recent market events by a wide range of commentators including equity traders, pension fund managers and government regulators. At a meeting before the CFTC, Frederick Grauer, President of Wells Fargo Investment Advisors, said, "We believe the principal responsibility rests with the NYSE for lacking the systems capacity and depth of capital to respond to the legitimate needs of its investors." An industry group which represents some of the largest U.S. pension funds, the Committee on Investments of Employee Benefit Assets, produced a report which stated, "The failure of the specialists to provide orderly and timely transactions contributed to the negative psychology of the moment, disorderly markets, and created a discontinuity with the futures markets."

As has been noted, the specialists frequently halted trading in their stocks during the October 19 market decline and the following days. It is NYSE policy to allow for trading halts and delayed openings when there are large order imbalances. On October 19, it took over ninety minutes for all 30 of the Dow Jones Industrial stocks to open. The following day, not all of the Dow stocks were open until 1:30 p.m. These stocks also experienced frequent trading halts. (See Table 8, immediately following, showing the percentage of Dow stocks which were not trading at various times on October 19th, 20th, and 21st.)

TABLE 8

Percentage of DJI Stocks Not Trading
(By Hour of Day)

Time	10/19/87	10/20/87	10/21/87
9:30 a.m.	87%	76%	83%
10:00 a.m.	43%	17%	20%
10:30 a.m.	37%	17%	3%
11:00 a.m.	3%	3%	3%
11:30 a.m.	0%	30%	0%
12:00 p.m.	0%	33%	3%
12:30 p.m.	0%	20%	0%
1:00 p.m.	0%	7%	3%
1:30 p.m.	0%	3%	0%
2:00 p.m.	0%	0%	0%
2:30 p.m.	0%	0%	0%
3:00 p.m.	0%	0%	0%
3:30 p.m.	0%	0%	0%
4:00 p.m.	0%	0%	0%

Source: Chicago Mercantile Exchange and F. E. Fitch, Inc. (New York Stock Exchange)

These trading halts indicate that the specialists were unable or unwilling to provide the necessary liquidity to keep the market functioning and provide continuous trading. The lack of specialist liquidity almost resulted in an exchange-wide trading halt on October 20 at approximately 11:30 a.m. The NYSE's Chairman, John Phelan, reportedly discussed his concern as to whether the specialists could handle the order imbalances with White House Chief of Staff, Howard Baker. According to a December 7, 1987 New York Times article, "White House officials said Mr. Baker was deeply worried about the psychological impact of closing the markets, and feared a closing would touch off a panic that would make them difficult to reopen." Although the exchange did not close, many of the major stocks had stopped trading.

Additionally, the New York Stock Exchange is reportedly investigating some specialist units with respect to large gaps which occurred between the closing and opening prices of certain stocks.[18] The NYSE is attempting to determine why such price fluctuations occurred and whether certain specialists profited from such fluctuations.

We believe that a number of modifications to the specialist system should be considered in response to the October 19 market decline. Specifically, serious consideration should be given to instituting a system of competing specialists. With the continuing increase in NYSE volume, substantial numbers of shares often must be funneled through a single specialist in a short period of time. If there were more than one specialist for each stock, order imbalances would be less likely to lead to trading halts and delayed openings. As the October 31, 1987 edition of The Economist states, "one under-capitalized market-maker in a stock is more likely to withdraw and avoid making a market than several competing market-makers or a crowd of jostling traders in a pit." Competition should improve market continuity and result in greater efficiency in specialist pricing.

There have been several other proposals aimed at improving the specialist system, including an increase in specialist capital and the publication of the specialists' limit order book. We believe that such proposals should be given consideration although the introduction of competing specialists might obviate the need for such further adjustments. In light of the specialists' performance in October, proposals have also been made to limit their discretion to halt trading. We have already discussed the need to eliminate such discretion in our discussion of "circuit breakers". Like price limits in futures markets, trading halts should be instituted in a predetermined fashion with advance public notice as to the exact circumstances under which they will occur.

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[18] Spear Leeds and Kellog and M.J. Meehan & Co. have been forced to resign their specialist positions in J.P. Morgan & Co. and Gould, Inc., repsectively. A number of investigations are reportedly in progress.

C. Portfolio Insurance and Index Arbitrage

Some critics have "pointed a finger" towards certain strategies used by stock index futures traders as precipitating the October, 1987 decline and/or exacerbating the amount of the fall. In particular, "program trading" and "portfolio insurance" strategies utilizing stock index futures contracts have been singled out as "scapegoats."

These accusations are not a recent development. In the past several years, the effects of index arbitrage and portfolio insurance on the underlying market have been widely debated. A number of observers have maintained that these type of strategies have increased volatility in the market in recent years. The existing empirical evidence, however, refutes these contentions.19/

In a similar manner, critics have blamed index futures for sharp price declines on certain trading days. However, comprehensive analyses prepared by the SEC after the major losses on September 11 and 12, 1986, and by the CFTC after the January 23, 1987 fall in prices, conclude that index futures trading strategies did not cause the declines observed on those days.20/

19/ For example, see:

Commodity Futures Trading Commission, Securities Exchange Commission, and Federal Reserve, "A Study of the Effects on the Economy of Trading in Futures and Options", December 1984;

Salomon Brothers, "Market Volatility: An Updated Study", January 1987;

Edwards, Franklin, "Financial Futures and Cash Market Volatility", Columbia Working Paper, June 1987.

20/ Securities and Exchange Commission, "The Role of Index-Related Trading in the Market Decline on September 11 and 12, 1986", March 1987;

Commodity Futures Trading Commission, "A Review of Stock Index Futures Trading on January 23, 1987", July 1987.

While the events of October 1987 may ensure that this debate will continue in the future, it is nevertheless clear that activities in the MMI at the Board of Trade had a minimal influence on the underlying market during this period. MMI futures are a relatively small part of the total stock index futures complex. In 1987, MMI futures averaged 10,399 contracts a day which placed it third behind the Chicago Mercantile Exchange's S&P 500 (75,275 contracts per day) and the New York Futures Exchange's[21] NYSE Composite Index (11,525 contracts per day). In terms of market share, volume in MMI futures only accounted for approximately 10.4 per cent of all stock index futures contracts.

The relatively small market share of the MMI has limited the contract's possible impact in the cash market. For example, regarding program trading strategies, total index arbitrage related positions amounted to about 1.3 percent of total NYSE share volume on October 16 and less than 1 percent on October 20.[22]

With respect to portfolio insurance activities, the MMI, unlike the more broadly based S&P 500 and the NYSE Composite indices, has not been widely used by portfolio insurers. On October 19, total institutional investor selling of MMI futures represented less than one percent of NYSE dollar volume.[23]

Finally, it should be noted that even though the CBOT firmly believes that trading strategies utilizing the MMI have not had much, if any, influence, much less a detrimental influence, on the stock market, the Board of Trade has taken the initiative to protect against any potential future development that may occur. Specifically, the Board of Trade responded quickly by proposing permanent price limits on its stock index contracts. The CFTC granted approval on January 12, 1988, and on the following day the Exchange imposed the limits on a permanent basis.

D. Speculative Position Limits

The question has arisen as to the advisability of adopting stricter speculative position limits for the futures markets. At the outset, it should be noted that the futures markets, unlike the equity securities markets, already have in place Congressionally-mandated position limits which apply to all contracts. These limits are established by the Commodity Futures Trading Commission with respect to agricultural futures; position limits for all other futures contracts are established by the exchanges with the approval of the CFTC. Such position limits apply to all investors. Only bona fide hedgers may apply for an exemption from such limits subject to exchange approval. Persons seeking hedge exemptions must submit an application setting forth the basis upon which the exemption may be granted. Such applications are reviewed by the exchange and, when approved, permit the hedger to exceed speculative position limits by a specific amount of contracts. The approval to exceed speculative limits may be withdrawn by the exchange at any time.

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[21] The New York Futures Exchange is a wholly-owned subsidiary of the New York Stock Exchange.

[22] *Source*: Commodity Futures Trading Commission.

[23] *Id.*

In accordance with the provisions of the Commodity Exchange Act, speculative position limits are designed to eliminate excessive speculation which might tend to cause manipulation or other misuse of the markets. They are not intended to discourage speculation since speculators are needed to foster and facilitate the risk transference function of the futures markets.

The Board of Trade monitors compliance with speculative position limits through a system of member firm reporting and market surveillance. Violators of speculative position limits are subject to the disciplinary sanctions of the Business Conduct Committee. It should be noted, however, that that were no violations of Board of Trade speculative limits in the Major Market Index contract during the October market crisis.

The combination of exchange-set margins, pre-established price limits, and speculative position limits help assure that futures markets operate in an orderly and efficient fashion. However, the absence of position and price limits in the equity securities markets should be examined.

E. Effects of Stock Index and Financial Futures on Underlying Securities

Stock index futures contracts offer portfolio managers, underwriters, dealers and financial institutions a cost efficient vehicle for hedging and risk transference. The depth of the index futures markets normally offers lower transaction costs and promotes greater liquidity for buying and selling than cash market transactions consisting of similar baskets of securities. This increased liquidity and efficient risk reduction mechanism translates into a reduced cost of capital to firms which enhances the process of capital formation.

The hedging and capital formation benefits of stock index contracts have been well documented by a number of regulators, market users, and academics in recent years.24/

For instance, a joint Federal Reserve Board, CFTC, and SEC report on the futures markets notes that many investment bankers indicate that they are more willing to underwrite securities because of the opportunity to hedge with stock indices. Securities are underwritten in order to provide additional capital for a corporation. The investment bank bears the risk of declining price movements during this process. By transferring this risk to the stock index futures market, the underwriting costs to the corporate issuer are substantially reduced and additional capital formation is encouraged.

This view is also supported by James O'Brien, a member of the staff of the Federal Reserve System. He states:

> "The introduction of stock index futures with low transaction costs undoes the effect of transaction costs associated with stock leveraging. With respect to stock leveraging then, stock index futures tend both to encourage capital formation and to shift the composition of capital toward less risky activities."

Mr. O'Brien further states:

> "An important result...is that stock index futures that involve relatively low transaction costs exert their effects on capital formation by facilitating risk transfer."25/

24/ For example, see:

Board of Governors of the Federal Reserve System, Commodity Futures Trading Commission, Securities and Exchange Commission, "A Study of the Effects on the Economy of Trading in Futures and Options", (1984);

Figlewski, Steven, "Hedging With Stock Index Futures: Theory and Application in a New Market", Journal of Futures Markets, Summer 1985, pp. 183-200;

O'Brien, James, "Stock Index Futures and Capital Formation in a Capital Asset Pricing Model with Transaction Costs", Financial Futures and Options in the U.S. Economy, (1986);

"Pension Funds: The Billion Dollar Funds", Intermarket, June 1986.

25/ O'Brien, op. cit., pages 106 and 116.

It is evident that stock index futures markets have become closely interrelated with the underlying market. This fact has also been discussed in the Brady Report. Specifically, it is concluded that:

> "Analysis of market behavior during the mid-October break makes clear an important conclusion. From an economic viewpoint, what have been traditionally seen as separate markets - the markets for stocks, stock index futures, and stock options - are in fact one market. Under ordinary circumstances, these marketplaces move sympathetically, linked by financial instruments, trading strategies, market participants and clearing and credit mechanisms."26/

In short, stock index futures play a key economic role. If unnecessary restrictions and impediments are placed on these contracts, the cost of equity capital to firms will potentially increase and the process of capital formation will be hindered and made less efficient.

Finally, it should be noted that while a tremendous amount of attention has been directed recently to stock index contracts, the economic function of other futures contracts has been well documented over the years. While research has spanned various financial and agricultural contracts, several key conclusions have been repeatedly drawn. First, futures contracts play a major role in providing a risk reduction mechanism by which risk adverse institutions and individuals can hedge against adverse cash price movements.27/ Second, futures contracts aggregate and convey additional information and increase price reporting of the underlying

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26/ Report of The Presidential Task Force on Market Mechanisms, January 1988, Executive Summary, page 3.

27/ For example, see:

Keynes, A Treatise on Money;

Hicks, Value and Capital;

Working, "Hedging Reconsidered", Journal of Farm Economics, 1953, and "Futures Trading and Hedging", American Economic Review, June 1953.

commodity.28/ Third, the introduction of futures trading on both agricultural and financial contracts has not increased the volatility of cash prices.29/

28/ For example, see:

Grossman, S., Journal of Finance, May 1976; Grossman, S., Review of Economic Studies, 1976; Grossman, S., Journal of Economic Theory, 1978;

Grossman and Stiglitz, "Information and Competitive Price System", American Economic Review, May 1976;

Newbery and Stiglitz, The Theory of Commodity Price Stabilization: A Study in the Economics of Risk, 1981.

29/ For example, see:

Corgel, J.B., and Gay, G.D., "The Impact of GNMA Futures Trading on Cash Market Volatility", AREUEA Journal, Vol. 12, Summer 1984, pp. 176-190;

Charles, D., and Workman, R., "Measuring Patterns of Price Movements in the Treasury Bill Futures Market", Journal of Economics and Business, Vol. 33, Winter 1981, pp. 81-87;

Figlewski, S., "Futures Trading and Volatility in the GNMA Market", Journal of Finance, Vol. 36, May 1981, pp. 445-456; Froewiss, K.C., "GNMA Futures: Stabilizing or Destabilizing?", Federal Reserve Bank of San Francisco Economic Review, Spring 1978, pp. 20-29.;

Moriarty, E.J. and Tosini, P.A., "Futures Trading and the Price Volatility of GNMA Certificates-Further Evidence", Journal of Futures Markets, Vol. 5, No. 4, Winter 1985, pp. 633-642;

Seider, D.F., "Discussion-Futures Trading and Volatility in the GNMA Markets", Journal of Finance, Vol. 36, May 1981, pp. 484-486;

Simpson, W.G., and Ireland, T.C., "The Effect of Futures Trading on the Price Volatility of GNMA Securities", Journal of Futures Markets, Vol. 2, Winter 1982, pp. 357-366;

Simpson, W.G., and Ireland, T.C., "The Impact of Financial Futures on the Cash market for Treasury Bills, Journal of Financial and Quantitative Analysis, Vol. 20, No. 3, September 1985, pp. 371-379.

VII. CONCLUSION

Throughout the market crisis in October 1987, our nation's futures markets performed the function they were intended to perform under severe pressure. The performance of Board of Trade markets was particularly impressive as unprecedented numbers of institutional and individual investors sought the risk-transfer facilities of our U.S. Treasury Bond futures contract. Our markets were open, our quotes were available to the world as a significant price barometer, and not a single clearing default occurred despite record volume.

Proposed changes in the manner in which stock index futures contracts are regulated should be carefully reviewed in light of the proven performance of the futures markets and the vital distinctions which exist between securities and futures. Better co-ordination and information-sharing between the securities and futures markets and their separate regulators, the SEC and CFTC, can and should occur. Circuit-breakers should be applied in an even-handed and uniform fashion across markets. An audit trail system like the Board of Trade/Chicago Mercantile Exchange CTR Plus system should be adopted by the securities markets. Better information-sharing regarding pay and collect data information should also be achieved between futures and securities clearing entities. Review of matters of intermarket concerns should take place on a regular and formalized basis with full participation by the relevant stock and stock index futures markets and their respective regulators. The adoption of such measures requires no legislative or regulatory action, yet will fully address the potential problems which can arise in separate but inter-related markets without imposing costly regulations, e.g., higher margins, or unwieldy regulatory mechanisms, e.g., creation of an intermarket super-agency.

In light of the very real competitive challenge posed by foreign futures markets, any proposals to modify the manner in which futures are traded in this country must be carefully weighed against the likelihood that the implementation of such proposals will drive U.S. business off-shore. Increased regulatory costs will not only undermine our worldwide competitive position, but also force U.S. citizens to seek markets which offer minimal customer protections.

PATRICK J. LEAHY, VERMONT, CHAIRMAN

JOHN MELCHER, MONTANA
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DAVID K. KARNES, NEBRASKA

United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

May 4, 1988

Mr. Karsten Mahlmann
Chairman
Chicago Board of Trade
LaSalle at Jackson
Chicago, Illinois 60604

Dear Cash:

On behalf of the Senate Committee on Agriculture, Nutrition, and Forestry, I want to thank you for your testimony before the Committee last Wednesday, April 27, concerning the October 19th market crash and steps taken since then to improve market systems. Your testimony helped in establishing a record which will aid the Committee in its role as overseer of the U.S. futures markets.

In order to complete the hearing record, the Committee would appreciate your answers to the enclosed questions as soon as possible. Please return your responses to Christine Sarcone, Chief Clerk.

Again, I thank you for appearing before the Committee. If you have any questions, please contact Chuck Riemenschneider at 224-2035.

Sincerely,

Pat

PATRICK LEAHY
Chairman

PJL/jp

Enclosure

QUESTIONS FOR KARSTEN MAHLMANN
CHAIRMAN, CHICAGO BOARD OF TRADE

SUBMITTED BY SENATOR PATRICK LEAHY

1. On October 20, 1987, the price of your major market index contract rose dramatically during the middle of the trading day. Some have claimed this price rise was caused by a price manipulation. Although the CFTC has studied this trading activity (and concluded no manipulation occurred), press reports suggest that another congressional committee is investigating whether the CFTC's report was based upon doctored data. How do you respond to these charges that MMI's unprecedented price raise resulted from a price manipulation and that the CFTC relied upon altered data in compiling its report?

2. Most economists would say that arbitrage has a positive effect on both securities and futures markets because it keeps the markets in line and smoths out any price disparities. Do you agree with this view?

3. The SEC report on the October market crash stated that "Futures and options on stock indexes offer significant benefits to today's capital markets... (by adding) substantial liquidity and pricing efficiency to equity markets generally. Moreover, using these products, investors are able to control the risks in their particular needs. As a result, the markets perform their various economic roles more efficiently." (pp. 3-4-3-5). Contrary to the SEC's conclusions, former Secretary of the Treasury Donald Regan, as recently as last week, has recommended that index futures products be outlawed. What would the consequences of the Regan approach be?

4. Many reports, including the Brady Commission Report, urged the recognition of the existence of one "global market" to be monitored and coordinated by a single regulatory body (p. VII). During and after the stock market break, many Americans came to realize that the exchanges in Tokyo, London and the U.S. have profound effects on each other. In light of this international market, would you favor statutory creation of an intermarket coordinating council -- as I have proposed in draft legislation -- to coordinate the U.S. response to events in the "global" markets?

5. The Katzenbach study of program trading, commissioned by the NYSE, recommended that the NYSE consider trading blocks of stocks representing various indices. Do you consider this to be a beneficial trading instrument, and if so, what advantages would it offer to investors over trading futures contracts on stock indices?

Chicago Board of Trade

Karsten Mahlmann
Chairman of the Board

June 13, 1988

Senator Patrick Leahy
Chairman
Senate Committee on
Agriculture, Nutrition & Forestry
SR-328A Russell Senate Office Bldg.
Washington, D.C. 20510-6000

Chairman Leahy:

The following is submitted to you in response to your letter of May 4, 1988 requesting that I supplement our April 27, 1988 testimony before the Committee in five specific areas.

QUESTION NO. 1

On October 20, 1987, the price of your major market index contract rose dramatically during the middle of the trading day. Some have claimed this price rise was caused by a price manipulation. Although the CFTC has studied this trading activity (and concluded no manipulation occurred), press reports suggest that another congressional committee is investigating whether the CFTC's report was based upon doctored data. How do you respond to these charges that MMI's unprecedented price raise resulted from a price manipulation and that the CFTC relied upon altered data in compiling its report?

CBOT RESPONSE

As you note in your question, the Commodity Futures Trading Commission has reviewed activity in the Major Market Index contract on October 20, 1987, and concluded that no manipulation occurred. In addition, the Securities and Exchange Commission as well as the President's Task Force on Market Mechanisms both have reviewed our trade data and have found no evidence of manipulation of the contract. Of course, the Chicago Board of Trade has also reviewed this information and also concluded that there is no evidence whatsoever to suggest that any manipulation occurred.

LaSalle at Jackson
Chicago, Illinois 60604
312 435-3601

Yet, press reports have alleged that the data submitted to these agencies was "doctored" by the Chicago Board of Trade. These reports are scurrilous at best and we dismiss any such allegations as totally unfounded. This data is comprised in large part of our trade register clearinghouse computer tape, a document required by federal law to be kept by the Board of Trade in the normal course of business. Critically, the CFTC receives copies of these computer tapes on a regular basis to analyze via their own computer software program. The CFTC in fact had this data long before the baseless news articles regarding the imaginary manipulation were irresponsibly published. Therefore, any alleged attempt to "doctor" this data would have been futile since our federal regulator had the data previously.

We suspect that certain journalists who created the manipulation stories attempted to justify their original unfounded accusations. Nevertheless, we have included in our response all relevant data regarding Major Market Index trading on October 20, 1987. We would be happy to meet with you or members of your staff to further explain the data.

The Major Market Index did, in fact, trade at a discount of approximately 50 basis points at 11:18 a.m. Chicago time on October 20. The market rapidly rose to a premium of about 10 points at approximately 11:50 a.m. As you are additionally aware, the Major Market Index contract at the Chicago Board of Trade was the only stock index market open for trading during that period of time. We believe that the rise in the Major Market Index values can best be explained by two factors.

First, the New York Stock Exchange was effectively closed for this period of time on October 20 as has been widely reported in the press. Many stocks were officially halted and most others were effectively not trading. The publicly disseminated values of most stock indexes, such as the Dow Jones Industrial Average, were reflecting stale quotation prices, some hours old, some even from the previous day. Thus, the prices of stocks used in the computation of the indexes were very old and did not reflect true market prices. As a result, the public was significantly mislead as to the actual values of the Dow Jones Industrial Average and other market indexes. Therefore, any analysis of the differential or bases between financial market values and actual cash values is totally irrelevant. We firmly believe that if stocks traded at the New York Stock Exchange and included in the value of the Dow Jones Industrial Average and other major market indexes were actually reflecting their true and current market values, any differences between futures prices and cash prices would have been much less significant on October 20.

In short, the value of stocks traded on the New York Stock Exchange could not be determined during this period of time on October 20 through any source other than the Major Market Index contract which was open and trading on the Chicago Board of Trade.

Secondly, a severe liquidity crisis was evident in all financial markets after the close of business on Monday, October 19, and the morning of Tuesday, October 20. Specialists' inventories at the New York Stock Exchange were severely depleted in terms of its market value. Bank financing was difficult to obtain for specialists late in the afternoon of October 19 which seriously impaired trading on October 20. The Federal Reserve Board, as you are well aware, issued a statement on the morning of October 20 that they would serve as a source of liquidity to the financial markets. We believe that lending decisions of major banks were being reviewed with the encouragement of the Federal Reserve Board on the morning of the 20th. Those lending practices, particularly financing of specialists' inventory, returned to the markets about midday on Tuesday, October 20. Again, buying power had returned to the securities markets.

Additionally, many corporations saw the price of their stocks tumble below their reasonable estimate of value as a result of the massive overall selling pressure on Monday, October 19, 1987. These corporations saw an excellent opportunity to repurchase their own stock at prices below what they believed the "true value" should be and thus made significant purchases of their own stock on Tuesday, October20, 1987. These "buy-back" purchases contributed greatly to the market's recovery on October 20.

The technical factors resulting from lack of accurate market information from the New York Stock Exchange, coupled with the additional fundamental factors of liquidity returning to the securities markets and the prevalence of corporate buy-back programs, resulted in this significant rise in the price of the Major Market Index. Upon reflection, we firmly stand behind our decision to keep the market open for trading, reflecting the value of financial markets and thereby fulfilling our Congressionally-approved public function.

QUESTION NO. 2

Most economists would say that arbitrage has a positive effect on both securities and futures markets because it keeps the markets in line and smooths out any price disparities. Do you agree with this view?

CBOT RESPONSE

Yes.

Stock index futures offer portfolio managers, underwriters, dealers and financial institutions a cost efficient vehicle for hedging and risk transference. Further, stock index futures promote greater liquidity for buying and selling, than cash markets due to the homogeneous nature of contract designs. Increased liquidity and risk reduction facilities translate into a reduced cost of capital to firms, which enhances the process of capital formation.

For example, a combined 1984 Federal Reserve Board, CFTC, and SEC report, "A Study of the Effects on the Economy of Trading in Futures and Options" noted that many investment bankers indicated that they were more willing to underwrite securities because of the opportunity to hedge with stock indexes. By transferring risk to the stock index futures market, the underwriting costs to the corporate issuer are substantially reduced and additional capital formation is encouraged. A number of studies further support the view that stock index futures and options promote capital formation. James O'Brien's "Stock Index Futures and Capital Formation in a Capital Asset Pricing Model with Transaction Costs" (1986) and Dwight M. Jaffee's "The Impact of Financial Futures and Options on Capital Formation" (1984), provide strong evidence that the capital formation process is enhanced by the use of stock index futures and options. O'Brien, a member of the staff of the Federal Reserve System, states:

> The introduction of stock index futures with low transaction costs undoes the effect of transaction costs associated with stock leveraging. With respect to stock leveraging then, stock index futures tend both to encourage capital formation and to shift the composition of capital toward less risky activities.

He adds further:

> An important result... is that stock index futures that involve relatively low transaction costs exert their effects on capital formation by facilitating risk transfer.

These benefits from stock index futures contracts can be realized only if a "fair" relationship between the futures contract and the underlying stock index is maintained. This relationship reflects the net cost of financing the futures position relative to the cash. Stock index arbitrage is the trading strategy which links the cash and futures market to maintain the efficient relationship between the cash and futures prices.

> Index arbitrage provides a direct linkage between the stock and index futures markets. Report of the Presidential Task Force on Market Mechanisms, p. 55.

In general terms, stock index arbitrage is the simultaneous purchase and sale of stock index futures and baskets of the underlying stocks, whenever the cash/futures relationship strays out of line. The arbitrageur is rewarded by the price differential while stabilizing the relationship between prices in the two markets.

Stock index arbitrage can be simply thought of in the following manner. Stock index futures and the cash market for equity securities themselves represent two related, but separate, pools of capital. Index arbitrage is the "lock" which links these two "pools" of capital; when one is higher or lower than the other, the "lock" opens to level the two pools thus keeping both liquid and orderly. Ironically, this "lock" has now been closed to all except a very few by the SEC's approval of NYSE Rule 80-A, the 50 DJIA point "collar" on the NYSE's DOT system, the vehicle by which most index arbitrage is done.

Thus, cash/futures arbitrage has a positive effect on maintaining the relationship between the futures contract and the underlying stock index. The December, 1984 joint study noted above states that:

> "Arbitrage and spread trading adds to the liquidity of both derivative markets and underlying cash markets. Such trading thereby further facilitates hedging by these economic units wishing to do so and, by deepening and broadening the cash markets, makes it possible for portfolio managers and other hedgers to adjust their positions quickly and at a relatively low cost."

By enhancing the hedging benefits of futures and options, cash/futures arbitrage has a stabilizing influence on these markets.

Stock index arbitrage has often been criticized for contributing to stock market volatility. While a number of studies have analyzed this issue, the empirical evidence does not support the allegation that stock index arbitrage has any effect on stock market volatility. Studies by M. Zurack of Goldman Sachs ("Has the Stock Market Become More Volatile Since the Introduction of Stock Index Futures Contracts?"), L. Birinyi and H. N. Hanson of Salomon Brothers ("Market Volatility: Perception and Reality"), Professors H. Stoll and R. Whaley ("Expiration Day Effects of Index Options and Futures"), and Franklin Edwards, ("Financial Futures and Cash Market Volatility"), have failed to show any significant increase in stock price volatility following the introduction of stock index futures and options.

QUESTION NO. 3

The SEC report on the October market crash stated that "Futures and options on stock indexes offer significant benefits to today's capital markets... (by adding) substantial liquidity and pricing efficiency to equity markets generally. Moreover, using these products, investors are able to control the risks in their particular needs. As a result, the markets perform their various economic roles more efficiently." (pp. 3-4-3-5). Contrary to the SEC's conclusions, former Secretary of the Treasury Donald Regan, as recently as last week, has recommended that index futures products be outlawed. What would the consequences of the Regan approach be?

CBOT RESPONSE

A ban on stock index futures, as proposed by Donald Regan, would eliminate all of the benefits that stock index futures have brought to the financial and capital markets in recent years. These benefits include:

1. Hedging of stock price risk - Buyers and sellers of portfolios (such as pension funds, mutual funds and college endowments) protect their portfolios against adverse market moves at a cost savings to their constituencies. The portfolio manager, expecting a downturn in the market, often has to readjust his holdings or liquidate his portfolio to protect against risk. These actions at times can reduce liquidity, have a depressing influence on the market and add to market volatility. With stock index futures, the manager can short the market while maintaining his cash market position.

2. Hedging of new issue risk - Investment banks can hedge their stock price exposure during the course of underwriting a new equity placement by selling stock index futures. The ability to use stock index futures encourages increased investment bank participation. Corporations can also realize cost savings afforded by stock index futures during the course of new equity floatations. Price risk over the course of the placement is reduced, thereby reducing the overall cost of the placement and adding value to the stock price.

   In addition, it has been generally accepted that these new issue hedging activities encourage additional capital formation. For example, the 1984 combined Federal Reserve Board, CFTC, and SEC report, "A Study of the Effects on the Economy of Trading in Futures and Options" noted that many investment bankers indicated that they were more willing to underwrite securities because of the opportunity to hedge with stock indexes. By transferring risk to the stock index futures market, the underwriting costs to the corporate issuer are substantially reduced and additional capital formation is encouraged.

3. The smoothing of uneven cash flows - Pension insurance and mutual fund managers face uneven cash flows during the usual course of the year due to uneven redemptions and cash inflows. Stock index futures allow the manager to temporarily take positions in the futures market upon condition that the positions will be converted to the actual stock market upon receiving the appropriate cash inflows. Consequently, potential market upswings which add value to the portfolio are not missed due to uneven cash flows.

The above listed benefits add liquidity, increased flexibility and lower the cost of "doing business" in the cash equity market. For funds, these benefits are especially important since they are ultimately passed through to shareholders.

These benefits are often ignored in the popular criticism of stock index futures which tries to make them the scapegoat for any downward move in the market. It has to be remembered that many complaints come from small investors or firms catering to the small, retail customer. Often a problem of "perception" is cited-that the small investor is being treated unfairly or does not have an equal chance against large institutions. The word "perception" must be stressed. The stock market, in part due to the advent of block trading and program trading, has, over time, increasingly become an institutional market. These institutions, however, do not just represent themselves; in most cases, they are acting on behalf of hundreds of thousands of small individual investors including pension funds, mutual funds, state teacher benefit funds, etc. Moreover, both block and program trading have been widely used for a number of years prior to the inception of stock index futures. Further, block trading and program trading will not disappear if stock index futures are banned. Retail traders have, in recent years, realized the dominance of institutional trading and have begun to mimic the institutions by investing in instruments such as mutual funds.

Stock index futures, which lower the overall cost of trading and provide a risk reduction mechanism, further solidifies the already-present institutional evolution of the stock markets. Stock index futures do not "cheat" the small investor, they provide benefits of lower costs, efficiencies and liquidity to all investors.

Banning stock index futures will ultimately raise the cost of trading by decreasing market efficiency. Banning stock index futures in the U.S. will also find that the market will simply move overseas. Those that naively believe that the U.S. can coerce foreign governments to also ban stock index futures are misguided. The Chairman of the largest futures exchange in Europe is on record as saying that he is following the U.S.'s efforts to limit stock index futures with great interest since the potential for new business is great. Bank of England staffers have stated that currently too little stock index futures trading is taking place in London and is actively trying to encourage more. Coupled with the Japanese plans to introduce stock index futures this year, the rest of the world is beginning to catch on to the benefits of stock index trading. They are not banning stock index futures, they are encouraging its development. The top fifty United States equity securities are commonly traded world-wide. These foreign markets for our domestic equity securities are eagerly waiting to trade stock index futures. If we do not trade these products, these foreign - often less well regulated - markets will do so in an instant.

QUESTION NO. 4

Many reports, including the Brady Commission Report, urged the recognition of the existence of one "global market" to be monitored and coordinated by a single regulatory body (p. VII). During and after the stock market break, many Americans came to realize that the exchanges in Tokyo, London and the U.S. have profound effects on each other. In light of this international market, would you favor statutory creation of an intermarket coordinating council -- as I have proposed in draft legislation -- to coordinate the U.S. response to events in the "global" markets?

CBOT RESPONSE

As was detailed in our testimony before the Committee and in the more extensive written submission, we do not see the need for any additional legislation at this time. Indeed, the objectives and specifics of Chairman Leahy's thoughtful draft bill have to a large extent already been implemented, perhaps due in large part to the mere proposal of the bill itself. To add an additional layer of decision making, emergency declarations and possible judicial review of those actions is not necessary in view of the changes already in place. Moreover, granting a newly created agency such additional regulatory powers as rulemaking authority will necessarily reduce the agency authority granted by Congress to both the CFTC and the SEC. FRB Chairman Greenspan, CFTC Chairman Gramm and SEC Chairman Ruder have testified repeatedly in opposition to any such dilution of jurisdiction.

While we understand the concern and intentions which motivate such proposed legislation, we feel that the actions of the private sector and existing regulators have addressed those concerns. Moreover, we will continue our efforts to improve the systems and procedures in place. We feel that these private sector efforts will lead to implementation of the necessary changes and further Chairman Leahy's objectives by strengthening the interrelations between the markets to the ultimate benefit of all market participants.

Since our testimony, the Interior Report of the President's Working Group on Financial Markets ("Working Group Report") has been issued. The Working Group's finding and conclusion only reinforce and supplement our previous opinion that Chairman Leahy's proposed legislation is not needed.

Initially, the Working Group concludes that no legislation is necessary and believes that it fulfills the needs motivating both Chairman Leahy's and Senator Proxmire's proposed bills.

> ... [T]he Working Group believes that cooperative efforts under the existing regulatory structure will be more effective and less disruptive than more formal, additional legislated structure.... The Working Group believes that private market solutions, where feasible, are preferable to legislation because the private sector is closer to the problems and can address them in a more flexible manner.... Continuation of the Working Group would be consistent with the spirit and intent of the intermarket coordination bills introduced by Senators Proxmire and Leahy. Both bills are designed to achieve coordinated resolution of intermarket issues by the appropriate agencies. That is precisely what the Working Group is doing, while avoiding the diverse and difficult questions of legal authority, structure, and independence presented by the current bills. The Working Group believes its efforts are succeeding and should be allowed to continue. Working Group Report, at pgs. 3-4.

We testified previously that in addition to existing close coordination, greater coordination between market regulators is necessary. The Working Group is providing that coordination and will continue to do so. Given all the potentially negative consequences of creating a new regulator by legislation, it is incumbent upon us all to continue to let the Working Group, existing regulators and the private sector accomplish those changes which need to be made.

The reality of the global marketplace does not alter the soundness of these conclusions. If anything, it adds further complications to Chairman Leahy's proposal. Based upon our recent extensive experience in dealing with foreign marketplaces, both the private sector and the government regulators, the difficulties of international regulation will not be eased or overcome by Senator Leahy's proposal. The CFTC and SEC have both successfully met with their counterparts in Japan and the United Kingdom and arrived at unprecedented regulatory agreements. Those issues which remain unresolved are issues which involve the most sensitive national interests. Resolution of these remaining issues may eventually require intervention by the State Department and other high levels of the Executive and legislative branches of our federal government.

The Board of Trade has long supported the concept of improved international market regulation. We will continue to work with our regulator, the CFTC, on developing international regulation; but we must not act unilaterally. International regulation will not occur quickly; in the meantime, if we give away our markets through premature legislation, we will not be able to revive them later through later international regulations.

Creating a new superagency will not aid resolution of these issues. These remaining regulatory issues are best resolved as in the past, by the private sector in the first instance. Indeed, a Knight Ridder Financial wire report of May 19, 1988 exemplifies the efforts of the private sector.

> The Tokyo Stock Exchange, Chicago Mercantile Exchange and Chicago Board of Trade are expected to agree to exchange information to prevent unfair and abnormal trading in Japanese stock index futures, an exchange official said today.

To the extent the private sector is unsuccessful, the functional regulator should then act as necessary. If further intervention is required, a new "superagency" is unlikely to aid in that effort.

QUESTION NO. 5

The Katzenbach study of program trading, commissioned by the NYSE, recommended that the NYSE consider trading blocks of stocks representing various indices. Do you consider this to be a beneficial trading instrument, and if so, what advantages would it offer to investors over trading futures contracts on stock indices?

CBOT RESPONSE

An unsupported premise of the Katzenbach study, which was commissioned by the New York Stock Exchange, is that stock index futures trading has increased volatility in the cash markets. Members of the President's Working Group on Financial Markets recently have refuted any basis for this faulty premise. FED Chairman Greenspan and Treasury Undersecretary Gould testified before both the House and the Senate that increased volatility has become a part of the equity securities markets, that stock index futures are not the cause of that volatility and, in Chairman Greenspan's words:

> We must be prepared to accept a different pattern of behavior in our equity markets, and our objective must be to enhance their ability to accommodate change and withstand bouts of volatility. Wall Street Journal, May 20, 1988.

The Katzenbach study implied that index-related block transactions might prove an antidote to, or improvement upon, stock index futures contracts.

In our view, there is no apparent benefit to investors in this proposal. The mere fact that it would centralize the location for trading both stocks and blocks of stocks based on an index confers no particular benefit except potential economic benefit to the NYSE by attempting to take stock index futures business from Chicago and center it on the floor of the NYSE. Moreover, we would expect that difficulties surrounding physical delivery of blocks of up to 200-500 stocks would render such a proposal virtually impracticable, particularly at a time when the stock exchanges are grappling with limitations on their capacity to handle high levels of single stock transactions.

We suspect it is for this reason that proposals filed to date by stock exchanges with the SEC to trade products which would compete with stock index futures contracts have offered a cash-settlement, as opposed to a physical delivery, feature. Thus, both the Philadelphia Stock Exchange and the American Stock Exchange have filed applications to trade cash-settled instruments based upon the value of stock market indices. However, these applications to the Securities and Exchange Commission have a fatal flaw: the contracts in question are futures contracts which must be traded on CFTC-designated contract markets. As we have expressed in a comment letter to the Securities and Exchange Commission with respect to these applications:

> "In 1982, the Commodity Exchange Act ("CEA"), the Securities Act of 1933 and the Securities Exchange Act of 1934 (the "'34 Act") were amended generally to reflect a jurisdictional accord between the CFTC and SEC. This SEC-CFTC Accord was intended to resolve, among other things, the agencies' on-going dispute regarding regulatory jurisdiction over stock index futures and options contracts. The legislation jointly proposed by the SEC and CFTC, and enacted by Congress, provides that the CFTC:

> "...shall have exclusive jurisdiction with respect to accounts, agreements (including any transaction which is 3f the character of, or is commonly known to the trade as, an "option," "privilege," "indemnity," "bid," "offer," "put," "call," "advance guaranty" or "decline guaranty") and transactions involving, and may designate a board of trade as a contract market in, contracts of sale (or options on such contracts) for future delivery of a group or index of securities (or any interest therein or based upon the value thereof)... (emphasis added) (CEA Section 2(a)(1)(B)(ii))."

An analysis of the PHLX CIPs proposal confirms that these instruments fall squarely under the exclusive jurisdiction of the CFTC pursuant to the terms of CEA Section 2(a)(1)(B)(ii). As a matter of the economic purpose of the instruments, there is no relevant difference between the stock index futures contracts which have been trading on registered commodity markets for six years and the proposed CIPs. Like stock index futures, a CIPs trader would enjoy a profit or sustain a loss depending on the future market value of an index of securities. As is required for stock index futures under CEA Section 2(a)(1)(B)(ii)(I), delivery on CIPs is to be effected in cash."

Clearly, the stock exchanges would have solid economic and competitive incentives to bring stock index business to their floors. However, the practical difficulties of trading actual baskets of stocks and the legal impediments to trading cash-settled, index-type contracts renders such a proposal altogether unworkable.

Respectfully submitted,

Karsten Mahlmann

Karsten Mahlmann
Chairman

The **Chairman**. Thank you, and it will be made a part of the record. I appreciate the statement.

Mr. Sandner, it is good to have you here again.

STATEMENT OF JOHN F. SANDNER, CHAIRMAN OF THE BOARD OF GOVERNORS, CHICAGO MERCANTILE EXCHANGE [CME], CHICAGO, IL

Mr. **Sandner**. Thank you, Mr. Chairman, Senator Daschle, and Senator Heflin. My name is Jack Sandner, and I am chairman of the Chicago Mercantile Exchange board of governors.

Mr. Chairman, the written testimony that we have is rather lengthy and comprehensive, and I would respectfully ask permission to submit it to you on the record, rather than read it to you.

The **Chairman**. Without objection.

Mr. **Sandner**. I would like an opportunity, however, to make a brief oral statement.

The **Chairman**. Without objection, it is gratefully ordered. Mr. Sandner, go ahead.

Mr. **Sandner**. Mr. Chairman, on the morning of October 20, the morning after the crash, two questions preoccupied the world.

First, would the crash continue?

The second is why did it happen?

The first seemingly was answered by the close of trading on the 20th. The market turned, and thank God. The question of why should have been as easily and as quickly answered.

The market had gone up, almost uninterrupted, for 5 years. In August 1982, the Dow was at 777. In August 1987, the Dow had reached an incredible height of 2,700 points. During this unprecedented 5-year bull market, the national debt had climbed into the trillions.

The trade deficit and the budget deficit had reached all-time highs, and the dollar was at historic lows. During 1987, interest rates had risen five consecutive times to a prime of approximately 9.75. Oil prices had increased approximately 30 percent, and between January and August, price-earnings ratios were at unprecedented levels relative to interest rates.

These, and many other factors, caused Chairman Alan Greenspan to comment: "Stock prices finally reached levels which stretched to incredulity expectations of rising real earnings and falling discount factors. Something had to snap. . . . The market plunge was an accident waiting to happen."

However, that obviously correct macroeconomic answer was overlooked in the rush to find a scapegoat. The press, and others pointed toward Chicago and futures, as the cause of the 500-plus point break in the Dow on October 19.

The Chicago Mercantile Exchange did, quickly, a preliminary analysis of its markets, and issued a preliminary finding within 10 days of the crash.

Our findings indicated that we carried out our responsibility in flawless fashion. Our findings indicated that we provided a safety net for a large number of investors, pension funds, mutual funds, and others, to hedge their stock risk.

Our findings found that we provided buyers when the rest of the world was selling. Our findings found that futures style margining was not adverse to the market, but rather, played a very positive role by providing financial integrity and increased liquidity during this chaotic time.

And further, that index arbitrage did not cause or accelerate the crash. Indeed, the interruption of index arbitrage had an adverse impact on the market, and that indeed, portfolio insurance in futures was only a fraction of selling in the equity markets.

Future marketmakers, the locals, as they are called, contributed a stabilizing influence to the market. These were some of our findings, and since those initial findings there have been six or seven full-scale reports, and intense analysis of these conclusions.

Thousands of pages of testimony have been given before the Senate and the House. Mr. Chairman, there has been no evidence in any report that has contradicted our initial findings.

Indeed, our findings have been fully supported. That is not to say that something did not go wrong, and that is not to say that changes should not be made.

But one must accurately identify what went wrong in order to correctly address the problems. Some assume that the problem is that the market took a large loss. Some legislators, authors, and regulators, and reporters, are intent on a search for ways to prevent the market from falling.

History is replete with examples of failed attempts at such quixotic goals. We must avoid the trap of trying to legislate value. What went wrong on October 19 is that the market sought a new level, a dramatically different value, and that it happened in a contracted period of time.

It was this contracted period of time in which the market reacted, and the fact that the systems in place were not prepared, that caused the problem.

It is said that the financial community was on the brink of a total breakdown. However, the potential breakdown was not because of the 500-plus point break in the Dow, but it was because the system was threatened because the change happened in 1 day.

The speed of the change caused the banking and credit system, the securities exchanges, and the futures and options exchanges to be stretched to their limits.

All attempts, therefore, in our opinion, to solve the problem, should be directed not at setting a value for the market, but toward allowing the market to seek its level in an orderly fashion, which may mean, with the systems given today, in a much more protracted way.

I daresay if the market's 500-point break and change in value had occurred in over a month's period of time, or in even a week, we would not be before this distinguished body today, and the systems would not have been challenged.

The CME's response has been to improve our system, and to coordinate with all components of these markets. We have striven to deliver to the public an orderly process for determining value, not a guarantee of value.

We believe that information sharing is a step in that direction. We believe that sharing pay-and-collect information is a step in that direction.

We believe that a structured coordination of communication between the New York Stock Exchange, the SEC, the CFTC, the Federal Reserve and Treasury, and perhaps other regulators, would be a step in that direction.

We believe that circuit breakers have a role to play so long as peak capacity cannot be met by the immense demands such as on October 19. We do not believe that legislation is necessary to achieve these ends, and we do not believe that futures and securities industries should be merged.

And we do not believe, as many have suggested, that the New York Stock Exchange, the futures exchanges, and the two regulatory agencies involved have dragged their feet in reaching a coordinated studied solution to achieving the goal of improving systems, the complex goal of improving systems to allow the market to establish value in an orderly way.

What we do believe is that these issues are tremendously complex, that there is no quick fix, and that a solution imposed in haste can be more disastrous than no solution at all.

We also believe that all interested parties are totally motivated to coordinate, totally motivated to solve the systemic problems, and totally motivated to promptly deliver a system that will accommodate the biggest market in the world.

We have made great strides in that direction. The CME has implemented programs and policies that will enhance the efficiency of our market, both under ordinary circumstances, and in the event of a catastrophe on the order of the October crash.

The list of things that the Chicago Mercantile Exchange has done is long, and with your permission, and in the interest of time—because many of them have already been mentioned—I will not go through that litany of things that we have done, but I would like your permission to submit, on the record, all the things that we have done with a detailed analysis of how we think they will improve the system.

The CHAIRMAN. Without objection, it will be a part of the record.

[The material follows:]

CHICAGO MERCANTILE EXCHANGE

William J. Brodsky
President and
Chief Executive Officer
312/930-3300

July 27, 1988

Senator Patrick J. Leahy, Chairman
U.S. Senate Committee on Agriculture,
Nutrition and Forestry
Russell Senate Office Building
Room 328-A
Washington, D.C. 20510

Dear Chairman Leahy:

During his testimony at the April 27 hearing of the Committee on Agriculture, Nutrition and Forestry, Chicago Mercantile Exchange (CME) Chairman John F. Sandner requested that the CME be allowed to submit for the record a detailed analysis of the actions it had taken to date to improve its trading systems and market mechanisms.

Enclosed is a summary analysis of actions which the CME had taken by April 27 designed to implement the recommendations of the Brady Task Force on Market Mechanisms.

On July 7, 1988, the CME and the New York Stock Exchange (NYSE) announced a joint cooperative initiative undertaken to further improve upon changes each exchange had implemented thus far. A report outlining that coordinated effort is also enclosed for your information.

Please do not hesitate to call me if I can be of further assistance.

Sincerely,

William J Brodsky

cc: Mr. John F. Sandner, Chairman

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LONDON NEW YORK WASHINGTON, DC TOKYO

NEWS RELEASE

CHICAGO MERCANTILE EXCHANGE

Contact: Andrew Yemma (312) 930-3434

FOR IMMEDIATE RELEASE

CME PROPOSES INTERMARKET COORDINATION COMMITTEE; "CIRCUIT BREAKERS," OTHER BRADY SUGGESTIONS

CHICAGO, Feb. 3 -- The Chicago Mercantile Exchange today announced a comprehensive set of proposals designed to address recommendations contained in the report of the Brady Commission on the October stock market crash.

At the top of the list is a proposal for the formation of an intermarket, private-sector committee to facilitate and coordinate sharing of financial and market information between the stock, stock index futures and stock options markets.

The CME also proposes to enhance financial safeguards and to impose "circuit breakers" in the event of large and rapid market moves.

Leo Melamed, Chairman of the Executive Committee and Special Counsel to the Board of Governors, said: "Above all, the Brady Commission highlighted a need for improved market coordination --a goal with which we wholeheartedly agree. However, our approach to coordination is through the private sector."

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To that end, Mr. Melamed said, the CME is proposing the formation of an Inter-Market Coordination Committee ("IMCC") to coordinate and oversee issues of market surveillance as well as of financial integrity, such as clearing and liquidity requirements. This committee should include representatives of the CFTC, the SEC and the Federal Reserve Board, and participation should be mandatory for all securities and commodities exchanges, Mr. Melamed explained.

"The Brady Commission noted that stock, stock index futures and stock options markets are all components of one overall market. We agree," Mr. Melamed continued. "The IMCC will be charged with assuring that these interrelated markets do not disconnect, which was identified by the Brady Commission as a principle problem in October."

In addition, the CME proposes a number of enhancements to its financial safeguards. These include increased security deposit requirements for CME clearing firms; routine intraday financial settlements with losses collected and gains paid out; an improved futures-options margin system, and a risk-based minimum capital requirement for all Futures Commission Merchants (FCMs).

The "circuit breakers" proposed by the CME contain an adjustable daily price limit in the S&P 500 stock index futures contract, as well as an innovative "opening limit" of

- More -

five points during the first 10 minutes of trading.

John F. "Jack" Sandner, Chairman of the CME Board of Governors, said: "These proposals are the result of careful study of the events of October and particularly the Brady Commission findings.

"The special 'circuit breaker' at the opening would give the market a pause at a critical time if opening order imbalances occur," Mr. Sandner added. "This is in line with the Brady recommendation."

After the 10-minute opening period, the daily price limits proposed for the S&P 500 contract would be 15 points when the index value is between 0 and 275 points (it is presently in this range); 20 points when the index value is between 275 and 325 points; and 25 points when the index value is above 325 points. On October 23, the CME imposed daily price limits of 30 points in the S&P 500 contract on an emergency basis.

William J. Brodsky, CME President and Chief Executive Officer, said the CME membership and staff stands ready to work with any governmental authority or exchange to assure that the goals of the Brady Commission are achieved.

"The events of October taught all of us that we work in a dynamic, complex, inter-connected financial world," Mr. Brodsky said. "We must work together to insure that this world operates in the best interests of all investors."

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POLICY RESPONSES TO THE OCTOBER CRASH

A PROPOSAL BY THE CHICAGO MERCANTILE EXCHANGE

February 3, 1988

The Brady Commission report provided a careful and well documented analysis of the October crash. The Chicago Mercantile Exchange feels that the report identified serious problems which must be resolved, and we have focused our proposals to address these problems. We have used the Brady Commission proposals and recommendations as a strong framework for constructive reform.

The Brady report makes a central observation about markets in stock, stock options, index options and index futures -- that they are closely linked, and must remain closely linked to function effectively. The report argues that the markets failed to meet this requirement during the crash, and that this violation of the "one market" concept led to serious problems that almost precipitated a major financial crisis. The Commission identified four areas requiring close attention:

- Clearing and Settlement Procedures
- Information Flows
- Margin Requirements/Financial Safeguards
- "Circuit Breakers"

We agree with this critique. We feel that each of these issues should be examined for its effect on intermarket performance, and that those areas that caused problems should be changed. We offer the following set of proposals to address these issues.

Clearing and Settlement Procedures/ Information Flows

Inter-Market Coordination Committee: The CME proposes the creation of an Intermarket Coordination Committee ("IMCC") to coordinate and oversee issues involving clearing, settlement, and financial integrity. This Committee would be modeled after the Intermarket Surveillance Group (ISG) set up by the Securities and Exchange Commission about ten years ago to deal with intermarket surveillance issues. The IMCC should include the CFTC, the SEC, the NFS, the NASD, and the Federal Reserve Board, and participation should be mandatory for all futures and securities exchanges.

The IMCC should mandate sharing of two central types of information in connection to clearing activities:

- Pay and collect data used in daily settlement
- Data on clearing firm positions across markets. We propose that the "DSRO" for each firm -- the self regulatory organization charged with auditing the firm -- would make this information available to members of the IMCC on an as-needed basis. Futures and securities exchanges could use the IMCC vehicle to share information on a reciprocal basis.

Effective sharing of this information might have reduced pressure on the financial system during the crash, and would have provided each exchange with a means of fully assessing the risks faced by its member firms.

The IMCC should also provide the Federal Reserve with a clear picture of liquidity pressures on the banking system, and will provide a centralized forum for managing those pressures.

The improvements in financial information flows recommended by the Brady Commission can be obtained through creation of the IMCC. One information area remains uncovered, however-- compliance and surveillance issues. We propose that these issues be addressed by an arm of the intermarket committee, which would share surveillance data on a routine basis, and which would conduct joint investigations as needed. Again, we feel that the CFTC and SEC should be members of this surveillance group, and that exchange participation should be mandatory. These issues probably fall outside the expertise of the Federal Reserve Board.

The CME also proposes a number of specific measures designed to enhance the clearing and settlement process:

1) **Bank Settlement:** The CME encountered some specific problems in obtaining prompt fund transfers during the crash. These problems involved liquidity and operational issues, rather than solvency problems, but they must be addressed nonetheless. We propose the following specific changes:

    - Strengthening of our agreements with settlement banks to clarify each bank's responsibilities
    - Cooperation with the Federal Reserve Board to eliminate the time lag between bank commitment for exchange liabilities, and actual transfer of funds via the Fed wire.

2) **Intraday Margin Calls:** During the week of the crash, the CME and other exchanges made unusually heavy intraday margin calls to protect the financial integrity of the exchange system. Because the CME and many other exchanges follow a policy of collecting margin due from firms without paying out margin due to firms on an intraday basis, these margin calls could potentially create liquidity problems for member firms.

   We propose to begin paying out gains as well as collecting payment for losses. We hope that other exchanges will adopt similar policies, and we would like to see these transfers coordinated through the IMCC.

Margin Requirements/Financial Safeguards

The Brady report called for "consistent" margin requirements for professional traders in both index and stock markets. The CME believes that the strict one-day settlement required for futures and options positions already makes margins on these products consistent with professional stock margins, where settlement does not occur for five days, and where numerous loopholes exist. We also believe, however, that the crash illuminated some areas where futures industry financial safeguards must be improved.

1) **Options Margins:** The CME currently bases its option margins on a simple system known as "delta margining." The Exchange proposes to move to a new system that will provide better discrimination among options positions, and which will accurately identify positions that carry greater than normal risk and should pay higher margins.

2) **Risk-Based Capital:** The CFTC currently specifies minimum FCM capital requirements based on the amount of customer funds held by the firm. We have petitioned the CFTC to add a risk-based capital requirement. This requirement would selectively impact firms whose customer or house accounts represent larger than average risk for a clearing house, and would represent a substantial improvement over the current system.

3) **Security Deposits:** The CME has not historically relied on security deposits as a major financial safeguard, depending instead on conservative margin and capital requirements. Security deposits do offer one substantial advantage, however, they give the Exchange a source of immediate funds that would not compromise the margin on existing positions. Although the CME would not have needed to use such funds

during the October crash, we feel that such a reserve would represent a useful addition to our risk management tools.

Circuit Breakers

1) **Price Limits:** The CME believes that price limits serve a useful function under extreme market conditions.

We do not believe that price limits will stop large price changes. Limits stop trading, but they do not affect changes in investor expectations and beliefs. However, by providing investors with time to respond to the new environment, limits may reduce panic and improve market liquidity. Toward this end, we are proposing an innovative package of price limits.

o **Daily Price Limit:**

We propose S&P futures price limits scaled to the price of the contract. We propose the following set of price limits:

S&P Futures Index Value	Price Limit
0-275	15 pts
275.05 - 325	20 pts
325+	25 pts

o **Opening Price Limit:**

We feel that limits can play a special role when the market opens, since this is a time when investors have the least information about where prices will be. Consequently, we have also proposed an opening price limit of 5 index points that would apply for the first 10 minutes of scheduled trading each day. This limit will ensure that investors are not caught by surprise during a major opening price move, but will not result in a day-long trading halt.

2) **Pre-Approval of Hedge Exemptions:** The futures industry uses price limits as a circuit breaker to ensure that individual traders or accounts do not grow too large for the market to accommodate. These "hedge exemptions" are granted to traders who have a legitimate need for large positions, and are willing to submit to close monitoring.

The CME has previously allowed hedgers to trade into a position that violates their current position limit, as long as the trader immediately applies for an extended hedge approval. The Exchange now intends to change this procedure, and to require all traders to obtain formal approval before exceeding position limits.

The Chicago Mercantile Exchange believes this comprehensive set of proposals fully addresses the problems identified by the Brady Commission. We believe implementation of these proposals will significantly improve the functioning of the U.S. financial markets.

CHICAGO MERCANTILE EXCHANGE

IMPLEMENTATION OF BRADY TASK FORCE RECOMMENDATIONS

MAY 9, 1988

CHICAGO MERCANTILE EXCHANGE

I. EXCHANGE GOALS RESPECTING CHANGES.

The events of Monday, October 19, 1987, and subsequent days placed considerable strain on the nation's financial system. While Exchange systems, which also experienced considerable strain, worked in an efficient and effective fashion, numerous changes have been made since that time. These changes were made because of a recognition by Exchange leadership that certain enhancements, including those recommended by the Brady Presidential Task Force, were in order. Our goals in making these changes were:

A. To implement and coordinate circuit breakers to protect the market system;

B. To coordinate and, where possible, standardize clearing systems in order to reduce financial risk;

C. To enhance the financial integrity of the system, including reducing the possibility of financial gridlock; and

D. To establish inter-exchange information systems for the purpose of coordinating contingency plans.

II. AREAS OF CHANGE.

A. Circuit breakers.

B. Clearing operations and risk management systems.

C. Sharing of financial information and joint audits.

D. Inter-exchange communications respecting market information and exchange actions affecting other markets.

E. Inter-market surveillance.

III. CIRCUIT BREAKERS.

A. Temporary Price Limits-Emergency Action.

1. During the week of Monday, October 19, 1987, the Exchange imposed a daily price limit of 30.00 Index points on its S&P 500 Stock Price Index Futures contract (the equivalent of approximately 50 Dow points).

2. Trading in the S&P 500 Stock Price Index Option contract was to be halted if the futures contract reached its limit.

B. Permanent Price Limits-Interim Basis.

The emergency price limit rule for S&P 500 futures was amended and approved by the Commodity Futures Trading Commission. The new rule, which is in effect today, is comprised of three parts:

1. Daily Price Limit - The rule establishes daily price limits depending on the level of the futures contract. The following schedule of price limits is now in effect:

Price Level	Price Limit
275.00 and under	15.00 Index Points
275.05 to 325, inclusive	20.00 Index Points
325.05 and up	25.00 Index Points

2. Opening Range Price Limit - The Exchange also adopted an opening range price limit of 5.00 Index points (the equivalent of approximately 40 Dow points). In the event of a major market move, the opening price limit would be in effect for ten minutes. At the end of this period, if the market was at limit, there would be a two-minute halt in trading. This will provide investors with an opportunity to evaluate their orders in the event of a major price move on the opening.

3. Halt in Options Trading - When the S&P 500 futures contract is at its Daily or Opening Range Price Limit, S&P options trading will be halted.

C. Coordinated Price Limits.

While actions taken to date respecting price limits were taken unilaterally, they were taken with the intention of being responsive to the recommendations of the various studies. We have been in continuous negotiation with representatives of other markets to devise a coordinated circuit breaker system as recommended in the Brady report.

We have offered the following tentative proposal to the Presidential Working Group on Financial Markets.

1. The CME would expand its daily price limit to 30 S&P Index points, the approximate equivalent of 250 points on the Dow. This limit would coincide with limits established on the NYSE and other U.S. equity markets.

2. The CME's 30 point limit will function as a typical futures price limit unless the NYSE reaches its limit and halts trading. At this point, both markets will call coordinated trading halts for a period of time. We will resume trading as the NYSE reopens.

3. The CME will continue its trading halt until it receives confirmation that a significant percentage, by weight, of the NYSE shares comprising the S&P index have reopened. The CME will then reopen its indices and options.

4. The CME will impose a second trading limit if the market continues down another 18 S&P Index points during the same day. Again, this limit would correspond to a similar limit established on the NYSE and other markets.

5. The CME's 5 index point opening limit will continue in place.

IV. CLEARING OPERATIONS AND RISK MANAGEMENT SYSTEMS.

Our clearing operations and risk management systems are second to no other futures, options or stock exchange. In the Exchange's history, which dates back to 1898, there has never been a clearing member that has defaulted on its obligations to the Exchange. More importantly, no clearing member has ever defaulted on its obligations to customers. And, as a result of the October stock market crash, no futures brokerage firm in our industry defaulted on its obligations to its customer, a claim that the securities industry cannot make.

While we stand behind the sophistication and integrity of our clearing and risk management systems, our experience respecting the October stock market crash has given us an opportunity to review our systems and make the following enhancements:

A. Increased Security Deposits.

Our pool of security deposits, which are liquid funds to be used in the case of a default, were increased from $4.5 million to $42 million. This fund is but one source to which the Exchange would look in the event of a default. The Exchange also has a common-bond system that provides for the allocation among its clearing members of any loss to the Clearing House caused by a default. The aggregate capital of all Exchange firms is approximately $17 billion.

B. Standardized Intra-day Pays and Collects.

In March 1988, the Exchange began making routine intra-day calls for variation margin. In addition, we began paying out variation margin. Thus, during times of volatile markets, most of the cash flow for variation margin will take place between 2:00 p.m. and 3:00 p.m. each day, which will be during current Fed Wire operating hours. This change will also allow banks to make credit decisions during regular banking hours (for both Chicago and New York) and will allow time to move whatever collateral is necessary before extending credit. The timing of this intra-day pay and collect process has been coordinated with the Board of Trade Clearing Corp. Additionally, we are holding discussions with the Options Clearing Corporation in order to further standardize procedures. This will aid in reducing the possibility of financial gridlock.

C. Standardized Margin Deposits.

In January, 1988, we standardized our procedure with the major U.S. clearing organizations respecting what was acceptable as margin by accepting U.S. Treasury notes and bonds in addition to Treasury bills for margin deposits. This will also reduce the possibility of financial gridlock by expanding what is acceptable as margin.

D. Increased Margins.

As a result of market volatility and responding to Congressional pressure, the Exchange increased margins on its S&P 500 futures and options contracts on several occasions since Monday, October 19, 1987. For speculators, margins on the futures side have been increased from $10,000 to $19,000 a 90% increase. Hedge and member margins have increased from $5,000 to $10,000 a 100% increase. On the options side, margins have also increased. By historical standards, which takes into consideration mainly the volatility of the market, our margins are substantially higher than would otherwise be appropriate.

E. Shared Pay and Collect Information.

Five years ago at the behest of the CME, the Board of Trade Clearing Corp. and the CME Clearing House began sharing on a daily basis pay and collect variation margin information for mutual clearing members. This information is utilized to compute the effect on firm capital of trading by the firm on the previous day. The primary benefit from sharing this information is that it allows the exchanges to react promptly to potential financial problems.

Recently, through a coordinated effort this exchange of information was extended to include all the futures clearing organizations and securities options clearing organizations and to include information about surplus and deficit margin deposits as well. Talks are being held to increase the scope of this information sharing to include the equity securities clearing organizations.

F. Parent Guarantees.

We have passed a rule requiring guarantees from the owners of clearing members. The rule essentially requires each owner of 5% or more of the equity securities of the clearing member to guarantee all obligations arising out of the non-customer accounts (house and proprietary) of the clearing member. This step has enhanced the financial integrity of the system.

G. Increased Membership Requirements.

Over the past year, the Exchange significantly increased the number of memberships that each clearing member must have in order to maintain clearing privileges. (These memberships may be sold by the Exchange in the event of a default by the firm.) As of May 6, 1988, all clearing members must have at least six memberships, two in each of the three divisions of the Exchange. Clearing members with a large number of branch offices or guaranteed introducing brokers have an additional membership requirement. Based on membership prices at the end of March, 1988, the value of these memberships is $1.6 million per clearing member.

H. Line of Credit.

The Clearing House is in the process of negotiating a substantial committed line of credit with our major banks. This will provide vital liquidity to the Clearing House to allow it to meet its obligations in the event of unusual conditions in the financial markets, again enhancing financial integrity and reducing the possibility of financial gridlock.

I. Continuing Attempts Respecting Coordination.

To increase intermarket communication and coordination, the CME organized the first Clearing Organization/ Clearing Bank Round table, which met on Monday, April 4, 1988. This group included all the Chicago based clearing organizations in both futures and securities, as well as the four Chicago clearing banks and the regulators of each of these organizations (the CFTC, SEC, and the Federal Reserve Bank of Chicago).

The group agreed to share additional information and to set up communication channels for use in the event of volatile market conditions. Three subcommittees were established and will report on the results of their efforts at the next Round table meeting in early May. The subcommittees will devise procedures to enhance communications and coordinated efforts between Chicago and non-Chicago entities, to establish a procedure for conference calling among relevant officials during an emergency and to identify and discuss long-term issues of mutual concern; e.g., cross-margining and twenty-four hour trading.

The group met again on May 4, 1988, and was expanded to include representatives from the National Securities Clearing Corp., the Depository Trust Company, the New York banks, and the Federal Reserve Bank of New York.

V. SHARING OF FINANCIAL INFORMATION AND JOINT AUDITS.

A. Joint Audit Group and New York Stock Exchange Agreement.

As of October 19, 1987, there existed two formal mechanisms for the sharing of information on a routine and an emergency basis and for the coordination of efforts during an emergency: 1) the Joint Audit Group, which is comprised of all futures exchanges and the National Futures Association, which works closely with the CFTC; 2) the contractual arrangement between the NYSE and futures exchanges, whereby the NYSE conducts audits of joint members that are broker-dealers.

Aside from resulting in a better utilization of resources for the private and public sector (NFA conducts audits that were the responsibility of the CFTC originally), both mechanisms provide for the timely flow of data among the various exchanges, the NFA, the CFTC, the NYSE and the SEC regarding the financial health of brokerage firms, which include the largest of the broker-dealers. Because both mechanisms were in place and had been functioning effectively prior to the market crash, financial information respecting firms flowed freely among the exchanges and regulatory agencies involved. Moreover, these mechanisms made possible the timely directing of audit personnel to those firms with whom we had the greatest concern. During and as a result of the market crash, not one commodity brokerage firm defaulted in its obligation to customers.

B. Continuing Attempts Respecting Coordination.

Notwithstanding this, the CME hosted a meeting on Friday, March 25, 1988, for financial surveillance staff representing the Chicago Board of Trade, the Board of Trade Clearing Corp., the NASD, the National Futures Association, the National Securities Clearing Corp., the International Securities Clearing Corp., the Chicago Board Options Exchange, the American Stock Exchange, the Options Clearing Corp., the Kansas City Board of Trade and the New York Stock Exchange.

The purpose of the meeting was to review what additional information should be shared routinely and during emergencies and to review the CME's existing audit plan for emergency situations. A subsequent meeting of this group was held April 27, 1988, at the New York Stock Exchange.

VI. INTER-EXCHANGE COMMUNICATIONS RESPECTING MARKET INFORMATION AND EXCHANGE ACTIONS AFFECTING OTHER MARKETS.

The fourth area in which there have been substantial efforts to improve coordination and communications among the various related exchanges is in the area of trading and market information.

The first meeting occurred on Wednesday, February 24, 1988, at the NYSE; the second one took place at the CBOE on Thursday, March 25, 1988; and the third meeting occurred May 3, 1988, at the Pacific Stock Exchange. The purpose of these meetings are to:

A. Enhance the type of information that the NYSE disseminates respecting the percentage of stocks now open, those in which trading has been halted or delayed, bid/ask indications, etc. This information will be helpful not only to officials of the exchanges in deciding what actions may be necessary, but also to traders respecting the pricing of the instruments they trade;

B. Establish an inter-exchange hotline linking the various trading floors and boardrooms for the exchange of non-standard information;

C. Identify what other types of information should be exchanged among the various parties; and

D. Improve and standardize the manner in which financial data is displayed.

The entities represented at these meetings include the American Stock Exchange, the Chicago Board Options Exchange, the Chicago Board of Trade, the Midwest Stock Exchange, the Pacific Stock Exchange, the Philadelphia Stock Exchange, the NASD, the Kansas City Board of Trade, the New York Stock Exchange and the Chicago Mercantile Exchange.

VII. INTER-MARKET SURVEILLANCE.

A. The Inter-Market Surveillance Group, which was initiated at the direction of the SEC, is comprised of all security and security option exchanges.

B. Its purpose is to define inter-market trading abuses, devise an effective surveillance system for their identification and assign surveillance responsibilities.

C. While the CME has participated in various ISG matters over the last three years, recently there have been three meetings (Tuesday, April 5, Thursday, April 21, and Friday, April 22) at which the focus has been on inter-market abuses, including front-running, between the futures and security exchanges. These discussions will continue in order to insure a uniform definition of these abuses and to enhance inter-market surveillance efforts.

CHICAGO MERCANTILE EXCHANGE

July 7, 1988

To All Members:

We are pleased to advise all our members that the Chicago Mercantile Exchange and the New York Stock Exchange today announced joint initiatives designed to strengthen and better coordinate the nation's financial markets. These initiatives conform with current financial market needs as well as the recommendations of the Presidential Working Group and the Brady Commission.

The agreement is the result of extended deliberations and negotiations between the two exchanges and have been approved by our respective boards. The initiatives are subject to approval of our respective federal agencies.

The following are highlights of the agreed-to joint actions:

- Institute a system of coordinated "circuit breakers"--automatic limits and trading halts triggered by pre-designated price movements.
- Develop a system of "shock absorbers" which would be triggered by smaller pre-designated price moves.
- Transform the present "collar" rule (which limits use of the NYSE's DOT system after a move of 50 Dow points) into a coordinated system that temporarily diverts program trading from the DOT system at approximately 100 points on the Dow.
- Create a common definition of "frontrunning," which is the placing of orders in one market based on prior knowledge of orders in the other market.

The coordinated system of circuit breakers and shock absorbers would function in the following manner in the event of a falling market:

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LONDON NEW YORK WASHINGTON, DC TOKYO

A. At the CME, there would be, as presently, a 5-point opening limit on the S&P 500 futures contract in effect for the first 10 minutes of trading (5 S&P points are approximately 40 Dow points). This procedure will be applicable in a rising market as well.

B. At the CME, there would be a new 12-point (approximately 100 Dow points) price limit which would be in effect for 30 minutes from the time the price limit is triggered.

C. At the NYSE, once the CME 12-point limit is triggered, a new procedure (replacing the previous 50-point "collar") would be instituted to divert "program trades" to a separate computer file to determine the extent of order imbalances. If a stock is found to have an imbalance of greater than 50,000 shares, the NYSE would halt trading in the stock and publicly announce the imbalance. The stocks would reopen when the imbalance is alleviated.

D. Both exchanges will institute intermediate price limits at 30 S&P index points and 250 Dow points, respectively. At the CME, there will be a 30-index point price limit which will be transformed into a NYSE/CME coordinated one-hour trading halt if the Dow declines 250 points.

E. At each exchange, a coordinated reopening procedure would occur after the one-hour halt. The CME S&P 500 futures contract will reopen after 50 percent of the capitalization-weighted value of the stocks in the S&P 500 index have reopened on the NYSE.

F. Upon reopening, the NYSE and the CME would allow market trading to the extent of another 20 S&P points and 150 Dow points, respectively.

A full explanation of these coordinated agreements will be forthcoming. Attached for your information is the press release, jointly issued by the Chicago Mercantile Exchange and the New York Stock Exchange.

Sincerely,

JOHN F. SANDNER Chairman of the Board of Governors	LEO MELAMED Chairman of the Executive Committee	WILLIAM J. BRODSKY President and Chief Executive Officer

CHICAGO MERCANTILE EXCHANGE

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FOR IMMEDIATE RELEASE

NEW YORK STOCK EXCHANGE AND CHICAGO MERCANTILE EXCHANGE BOARDS APPROVE INITIATIVES AIMED AT ENHANCING INVESTOR CONFIDENCE

NYSE To Give Priority To Individual Investor Orders

CME and NYSE Agree to Coordinate Circuit Breakers

New York, July 7th -- The boards of directors of the New York Stock Exchange (NYSE) and the Chicago Mercantile Exchange (CME) have approved a series of initiatives aimed at enhancing investor confidence in the marketplace.

At the NYSE, these initiatives include the development of an "express lane" to give priority to individual investors. At the CME, a system of "shock absorbers" were adopted to reduce unusual market volatility.

In addition, the NYSE and the CME announced plans for joint efforts to more effectively coordinate procedures between the equities and futures markets.

The initiatives conform with the needs of today's financial markets as well as the recommendations of the Presidential Working Group and the Brady Commission.

Financial Markets Work Together

In announcing the agreement, NYSE chairman and chief executive officer John J. Phelan Jr. said it "indicates

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that the nation's leading financial markets can work together to respond to the needs of both individual and institutional investors, as well as to pave the way for more effective interaction between the equities and futures markets."

Leo Melamed, chairman of the executive committee of the Chicago Mercantile Exchange, said "we have developed a program of coordinated procedures which serve the current needs of financial markets. These combined initiatives demonstrate our commitment to serving the needs of all investors and ensuring a level playing field for all market participants."

Markets Return To More Normal Patterns

"Markets have returned to more normal patterns," Mr. Phelan said, "but there is still a perception that individuals are at a disadvantage in today's high-speed markets. The initiatives approved by the boards should overcome that concern."

These initiatives include:

- Enhancements to the NYSE's automated order delivery systems to create an "express lane" to give priority to individual investor orders when the Dow Jones Industrial Average moves 25 points.
- The CME and the NYSE will coordinate procedures to control volatility and more efficiently link equities and futures markets.

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- Development by the CME of a series of "shock absorbers" which would be triggered by smaller predesignated price moves than circuit breakers.
- The formulation by the NYSE and the CME of a joint policy regarding intermarket frontrunning.
- Dissemination of program trading statistics by the NYSE.

Initiatives Supercede 50-Point Collar

The new initiatives supercede the limits on the use of NYSE automated systems for index arbitrage when the Dow Jones Industrial Average moved 50 points from the previous day's close.

Mr. Phelan said the 50-point collar was put in place to temper the volatility experienced in the market following the October market break.

"We believe all participants in the market will behave in a responsible manner, but warn those who deliberately try to create volatility that we have a strong commitment to working toward less volatile markets and if necessary we will reconsider limits on our automated systems or other barriers," Mr. Phelan declared.

NYSE Individual Investor Express Delivery Service

The NYSE Individual Investor Express Delivery Service (IIEDS) will provide an "express lane" giving transmission priority to individual investor orders when the DJIA is up or down 25 points from the previous day's close.

"Only shares owned by individuals will qualify for

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this priority treatment," Mr. Phelan said. "IIEDS is designed for individuals whose investments do not have the oversight of professional managers."

The service will provide accelerated routing through the NYSE's SuperDot automated order delivery system to simple market orders of 2,000 shares or less designated by the member firm as individual investor orders, giving them priority over all other orders to the point of execution.

"The development of this 'express lane' should give the individual investor confidence that their orders will be efficiently and effectively processed in the NYSE marketplace during times of heavy trading activity," Mr. Phelan said.

Once the orders arrive at the appropriate specialist post for execution, he added, they will compete equally with all other orders in the auction process by which prices are set on the NYSE.

Program Trading Data

The NYSE also said that in July it will begin to disseminate a monthly analysis of program trading data submitted by member firms. In May, the NYSE required its members to submit data on proprietary and agency program trading in all markets.

Mr. Phelan said that exposing this data to the full

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sunlight of public disclosure would "bring discipline to the market, and further reinforce our commitment to less volatile markets."

Coordinated Initiatives Between NYSE and CME

The NYSE and the CME announced they have jointly agreed to coordinate procedures to more effectively handle excessive market volatility.

At the CME, there would be, as presently, a five-point opening limit on the S&P 500 futures contract in effect for the first ten minutes of trading (five S&P points are approximately 40 DJIA points).

Thereafter, in a falling market, a new set of "shock absorbers" and "circuit breakers" would be activated in the following manner:

When the S&P 500 futures contract traded on the CME moves 12 points, or approximately 100 points on the DJIA, the futures contract price would not fall further for 30 minutes.

At the NYSE, orders identified as either index arbitrage or asset allocation program trades in the SuperDot automated order delivery system would be diverted into a separate computer file for matching and to determine the extent of order imbalances.

After a five minute period, any imbalances would be

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reported to the specialist in the stock, and the orders would be eligible for execution.

For the 50 highest-capitalized stocks in the S&P Index, trading would be halted if an imbalance of more than 50,000 shares exists, and the transaction could not be executed within the framework of the marketplace.

The imbalance would then be publicly disseminated, normal indication procedures would apply for those stocks that had been halted, and trading would resume when the imbalances were resolved.

"These procedures will expose order imbalances to the full sunlight of public disclosure, ensure the broadest dissemination of market information, and facilitate the participation of all interested investors," Mr. Phelan said.

Messrs. Melamed and Phelan noted the procedures are similar to those jointly agreed to by the NYSE and the CME in March, 1987 that successfully diminished the volatility associated with the "triple-witching" hour occurring quarterly when stock options, index options and futures expire.

When the procedures between the NYSE and the CME are triggered entry of all new NYSE stop orders will be banned, with the exception of individual investor stop orders of

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2,000 shares or less.

Circuit Breakers Approved

The NYSE and CME boards also approved, for a one-year pilot program and conditional on adoption by all domestic markets, coordinated circuit breakers to be triggered at pre-designated price movements. Coordinated circuit breakers were strongly recommended by the Presidential Working Group and the Brady Commission.

Under these procedures, all trading on the NYSE would be halted for one hour if the DJIA falls 250 points, and for two hours if the DJIA falls an additional 150 points the same day.

At the CME, there will be a 30-point S&P price limit, which will be transformed into an NYSE-CME coordinated one-hour trading halt if the DJIA declines 250 points. The CME S&P 500 futures contract will reopen after 50 percent of the capitalization-weighted value of the stocks in the S&P 500 index have reopened on the NYSE.

Upon reopening, the NYSE and the CME would allow market trading to the extent of another 20 S&P points (150 DJIA points) before a two-hour halt is called.

At the CME, trading would be subject to a 50 S&P point total daily limit (400 DJIA points), while the NYSE would maintain the option of reopening after a 2-hour halt.

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Common Policy on Frontrunning

The NYSE and the CME also agreed to develop a common policy regarding frontrunning between the two markets. Frontrunning involves executing an order in one market based on prior knowledge of an order in another market.

Initiatives Respond To Market Needs

Commenting on the cooperative efforts of the NYSE and the CME, John F. Sandner, chairman of the board of governors of the CME said, "These initiatives are a great tribute to the willingness of each exchange to work together to respond to the needs of the small investor and to the demands of a growing and increasingly global financial market."

The initiatives were developed with the assistance of a committee of executives of leading securities and futures firms. The initiatives will become effective following approval of the appropriate rule changes by the Securities and Exchange Commission and the Commodity Futures Trading Commission.

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Mr. **Sandner**. I think what you will find, that the things that we have suggested to be done, and the things that we have done fit with the Brady Commission recommendations.

It involves pay and collect sharing of information, position sharing, credits and debits sharing, margins, and all other avenues to avoid the financial gridlock that almost occurred on October 19.

Our main priority has been over the last month to establish some coordination in circuit breakers. That has been our main theme. As you all well know, we established what we call our circuit breaker, almost immediately after October 19, by establishing a limit on our market. That limit was 30 points. Today it is 15 points on the stock index market.

We also have come up with an innovative type of a circuit breaker on the opening, which is at a 5-point index limit, and it takes place during the first 10 minutes of trade. It is equivalent to about 40 points on the Dow.

It will give people an opportunity, if the market is not able to digest the information in such a short period of time before the opening, an opportunity to digest the information. The market will then open after 10 minutes, if it reaches that limit.

What I would like to do now, Mr. Chairman, is to turn to another aspect of the discussion, the underlying nature of our financial markets, their difference from traditional markets, and their global significance.

The Chicago Mercantile Exchange, the Chicago Board of Trade, and other futures markets in our country understood that the world had entered an era of great financial uncertainty, and that uncertainty breeds risk, and that risk seeks insurance.

Thus we created markets and procedures that respond to the needs of sophisticated users. Our growth proves the value of our market. Our markets allow efficient, innovative, technologically sophisticated techniques to be used by money managers and funds.

They are an integral part of an efficient capital formation system. Indeed, our markets have been hailed by the academics as the most important financial innovation in the last 20 years.

Nevertheless, futures exchanges are easy targets in an uncertain and complex world. Some have derided them as unnecessary and unsettling to the old-line establishment. There are those who do not understand their critical role.

Mr. Chairman, in truth, the United States futures markets are the envy of the financial center in the free world. Every financial center, be it London, or Tokyo, Paris, Singapore, Sydney, or Zurich, seeks to copy our formula.

There is not one industrial commercial country that has not tried to start, or is not in the process of trying to start a futures market. They will take it by imitation. They will take our markets overseas. It is not difficult.

Current communication technology makes this threat real. Futures markets can be recreated easily in any financial center. For example, as we debated the cause of the recent stock market crash, and the right of futures to exist as efficient markets, the Japanese Government proudly announced its decision to proceed with the formation of the Tokyo Futures Exchange, and the Tokyo Stock Exchange recently announced its launch of a stock-index futures contract which will begin in July.

Futures markets are utilized by investment bankers, and broker-dealers, by primary security dealers, and block traders, by banks and savings and loans institutions; by corporations and financial institutions of every sort; and by pension funds, insurance funds, and mutual funds.

Over one-third of our business flows from foreign shores, providing a meaningful and positive effect on the balance of payments.

Our markets are different. They are technologically advanced, efficient, and quick. Some ask Congress to throw sand into gears to slow us, remove our technological advantage or replace our excellence with mediocrity.

This is not a reasonable approach to secure the problems that have been identified.

Mr. Chairman, we urge the Congress to avoid policies that impose unnecessary restrictions on these markets, and drive this industry in the hands of foreign competitors.

Yes, we believe that there is more to do. We believe that coordination is essential between exchanges, clearing organizations, regulators, and banks.

And we believe that it will be accomplished. I am confident that there will exist a structure among exchanges, regulators, clearing organizations, and banks, that will meet the challenges of today's markets, and those of tomorrow.

We urge Congress to allow the exchanges and regulators to coordinate, so that the evolution in the center of financial markets will remain in the United States of America.

Thank you, Mr. Chairman.

[The prepared statement, letter, and response to questions of Mr. Sandner follow:]

TESTIMONY
OF
JOHN F. SANDNER
CHAIRMAN OF THE BOARD OF GOVERNORS
CHICAGO MERCANTILE EXCHANGE
BEFORE THE
COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY
UNITED STATES SENATE
APRIL 27, 1988

* * *

My name is John F. Sandner. I am Chairman of the Board of Governors of the Chicago Mercantile Exchange (CME).

The Chicago Mercantile Exchange has been asked to focus its testimony on four significant questions:

1. Of the important problems identified by the studies, reports and prior testimony, which remain to be addressed?
2. Which of the so-called problems either never existed or were not properly classified as problems?
3. How is volatility affected by coordinated versus uncoordinated circuit breakers?
4. Have the reports or studies produced any justification for: Chairman Ruder's call for margin increases on the futures side; certain calls for federal control over margin levels; charges that futures margin levels caused "excessive speculation"?

The complete answer to these four direct questions requires a very lengthy response: our testimony is intended to provide that response. We begin with a detailed recitation of the many actions that the Chicago Mercantile Exchange has implemented to improve our ability to respond to the systems and financial demands imposed by catastrophic events in the nature of the October 1987 market crash. I will then analyze the various reports and testimony and note which of the problems have been solved, and which were never really problems or never even existed.

Following is a brief listing of the actions implemented by the CME as short-term measures in response to the recommendations of the various agencies and the Federal Reserve Board. I would like to emphasize, however, that the unilateral circuit breakers chosen by the CME are not fixed in stone. We are actively negotiating with other markets under the supervision of our regulator to achieve the coordinated circuit breakers suggested by the Brady Commission.

Cash pay and collect data-sharing system

All futures exchanges and clearing organizations have entered into a formal agreement for the routine, electronic exchange of cash pay and collect data with respect to dual and multiple clearing members. We expect that option pricing data from the Options inclusion of securities data from the National Securities Clearing Corporation.

Clarification of contractual relationships between clearing organizations and clearing banks

We are in the process of finalizing an agreement with our settlement banks to afford additional certainty and clarity to the flow of variation funds through the clearing system.

Enhanced security against risks of extreme volatility

The CME has determined to raise its margin level for speculative positions in index contracts to approximately 15% of the value of the contract. This level is excessive given the current level of market volatility but will be kept in place unless and until inter-market coordination is accomplished.

The standing pool of security deposits held by the clearing house has been increased ten fold from $4,000,000 to $40,000,000. This will greatly increase the Exchange's ability to meet demands for liquidity.

The CME has increased the financial requirements imposed on clearing members by requiring that they own more memberships and has increased the obligations of parent firms of clearing members who might otherwise be insulated from liability to the clearing system for the default of its subsidiary.

The CME has submitted for CFTC approval a rule proposal designed to more clearly and completely identify the risks of option positions.

The CME has petitioned the CFTC to adopt a market-based minimum capital requirement for Futures Commission Merchants (FCMs) that would raise firm capital requirements by approximately 20% and relate that capital more closely to the market risk those firms carry.

The CME adopted a rule amendment to facilitate intra-day margin calls on a daily basis in response to significant price changes in any futures contract. The CME will pay a large portion of intra-day gains as well as collect the losses. This is intended to avoid the financial gridlock envisioned by the Brady Commission. The CME will coordinate the timing of intra-day calls with other clearing organizations in order to further reduce artificial burdens on firms holding related positions in different markets. Also, greater flexibility has been added with regard to the timing of required daily settlement payments. Again, this is intended to avoid the gridlock problem.

Clearing house, clearing bank and Federal Reserve Coordination

On April 4, 1988, the Chicago clearing houses and clearing banks participated with representatives of the Federal Reserve in a Clearing Bank Round Table organized by the CME. The group plans to meet on a thereafter on a quarterly basis.

Unilateral Circuit Breakers

The CME has adopted and will implement before the end of this month an innovative opening price limit for its index contracts. A narrow 5 index point limit (the equivalent of approximately 40 Dow points) will apply during the opening ten minutes of trading and special procedures, including a brief trading halt, will govern the reopening of the contract if the limit is still in effect at the end of the period. The purpose of the rule is to avoid price volatility that is caused by temporary imbalances resulting from a lack of information.

The CME has adopted and implemented daily price limits that are adjusted on a monthly basis to roughly approximate 6.66% of the value of the contract. Option trading in related products is halted when futures trading halts.

In the immediate aftermath of the Crash, the CME produced compelling evidence that it had performed without impairment despite the unprecedented volume and volatility. Nothing that has happened since the CME's original reports to Congress has contradicted this fact. Indeed, our preliminary findings that the CME provided a pressure valve for a large number of investors to hedge their stock risks, has been borne out by all the evidence.

All reports have concluded, as did our preliminary estimates, that approximately 48,000 contracts, the equivalent of 150 million shares, were sold by institutional portfolio managers at the CME on October 19 and that less than half of this selling pressure was transferred back to the New York Stock Exchange, via arbitrage.

Mr. Chairman, the question of why the market crashed remains the fundamental issue. A national debt of $2.3 trillion, a budget deficit of $148 billion, a trade deficit of $153 billion, and the dollar at historic lows, are concerns that cannot be relegated to second place. The foregoing, coupled with stock prices at historically high levels, certainly created a dangerous financial environment. Moreover, the crash was global in scope and was equally severe in countries that had no derivative markets and in which the strategies blamed in the U.S. played no part. These macroeconomic issues have not been sufficiently addressed, yet they are the real causes of the global stock market crash and continue to threaten severe economic dislocation.

We remain confident, that the crash was not caused by any system failure over which we have control or any trading strategy that owes its existence to futures or options markets. The crash was, in Chairman Greenspan's astute assessment, an accident waiting to happen given the overvaluation of important findings of each of the investigative reports on the crash, to examine in what manner, if any, they differ from our own, to review their recommendations, and to respond with our own suggestions.

FEDERAL RESERVE STATEMENT

On February 2, 1988, Alan Greenspan, Chairman, Board of Governors of the Federal Reserve System, testified before the Committee on Banking, Housing & Urban Affairs of the United States Senate. He agreed with our macro-economic analysis:

> "[S]tock prices finally reached levels which stretched to incredulity expectations of rising real earnings and falling discount factors. Something had to snap. If it didn't happen in October, it would have happened soon thereafter. The immediate cause of the break was incidental. The market plunge was an accident waiting to happen."

Chairman Greenspan also identified the impact of "modern technology coupled with the greater presence of sophisticated institutional investors" as a contributor to the suddenness of the drop. He rejected the Luddite solution of eliminating technology. He was absolutely clear that modern telecommunications and information processing enhances "the efficiency of our markets and is beneficial to many other aspects of our welfare" and is, regardless, here to stay. He also reminded the Committee that the professional institutional investors play, "an important role ... in managing our retirement programs and the assets of nonprofit institutions ..."

Chairman Greenspan stressed the dangers of intentionally disconnecting the derivative market from the equity market and the need to coordinate any circuit breakers and the collection and payment of margin and variation. Recognizing that circuit breakers in the form of price limits are "inherently destabilizing," he nonetheless characterized them as perhaps "the least bad of all the solutions."

He added an important caveat. The price limits must be known in advance and should be sufficiently wide to permit unimpeded trading except in the most extreme circumstances. They must be coordinated among markets.

Chairman Greenspan declined the Brady Commission's invitation to accept the dominant role in securities market regulation and instead suggested a form of joint oversight in which the Federal Reserve and the Treasury might participate. He also confirmed that consistent margins does not signify equal margins. He noted the fundamental differences in the price behavior of individual stocks and of the markets while promoting liquidity.

On March 31, 1988, Chairman Greenspan again testified before that same Senate Committee -- this time with the full benefit of all of the reports and studies. His view as to the cause of the severity and rapidity of the crash remained unchanged: it was a result of a "confrontation between dramatically changing computer and telecommunications technology and unchanging human nature."

Chairman Greenspan's analysis of the aftermath of the crash and the need for corrective legislation also benefited from the availability of the studies and reports. He concluded that the concern with the impact of portfolio insurance as an exacerbating factor has been abated. The market clearly taught a lesson to those who failed to realize that the high degree of liquidity necessary to execute the strategy would not exist during the extreme market conditions that would pertain at the exact time that the strategy became operative. The strategy has been modified or markedly scaled back.

Chairman Greenspan concluded that the current level of margins in futures markets provides "clearinghouses and other lenders with roughly comparable protection against credit losses..." He recognized the superior knowledge of the exchanges and their overwhelming self interest in correctly setting margin levels and concluded, "we should rely where possible on the private organizations to correct the problems that were evident last October."

THE CFTC REPORT

The CFTC provided the first analysis of the crash. It published its initial report early in November and released its final version in January, 1988.

- The report estimated that index arbitrage trading represented approximately 10% of NYSE volume, a conclusion supporting the original CME estimate.
- The report commended futures exchange decisions and performance throughout the crash. It documented the continuous and effective communication between the CME, the CFTC, the SEC, the Federal Reserve Board, and other exchanges including both securities and commodities exchanges.
- The report concluded that futures industry clearing and surveillance operations worked effectively and pointed out that no FCM failures occurred and that no customer funds were lost to default of a clearing firm.

The final CFTC report closely examined the role of various trading strategies in contributing to the crash. The report rejected the contention that index arbitrage and portfolio insurance interacted to cause represented only a small fraction of total equity sales over the period in question. In fact, these strategies were proportionally more important on October 14 than on October 19.

- Much of the heavy selling on the October 19 NYSE opening came from retail sources. One mutual fund group alone sold three times as many shares as all index arbitrage trading combined in the first half hour of October 19.
- The timing of portfolio insurance and index arbitrage sales does not match the timing of major price declines in either stock index futures or stocks.
- Many of the largest price moves during the crash occurred after index arbitrage trading had been halted by NYSE restrictions.

THE COMMITTEE OF INQUIRY STUDY COMMISSIONED BY THE CME

The Committee of Inquiry analyzed the role of the CME S&P futures market during the crash. Its findings were based on an extensive analysis of data from a wide variety of sources. The report's major conclusions were as follows:

- The crash was a worldwide event, and futures represented only a small portion of the entire picture.
- Selling pressure occurred simultaneously in both stock and futures markets on the morning of October 19. The Committee rejected the notion that the crash started in Chicago.
- Index arbitrage trading contributed a relatively small fraction of selling pressure to the NYSE, representing approximately 10% of volume. It found no evidence that index arbitrage caused or exacerbated the crash.
- The futures market absorbed a substantial amount of selling pressure that would otherwise have gone to the New York Stock Exchange.
- Portfolio insurance did contribute to selling pressure in the futures market. However, total portfolio insurance in futures represented only a fraction of total selling pressure in the equity markets as a whole.

THE KATZENBACH REPORT COMMISSIONED BY THE NYSE

The Katzenbach Report was commissioned by the NYSE in the Spring of 1987 to study the role of "program trading." This report, nearly completed at the time of the October crash, does not specifically focus on the issues before us. However, for the convenience of this process allow me to also review its findings.

The Katzenbach study must be distinguished from all the other reports in that its conclusions are based primarily on opinions expressed in interviews, Professor Sanford Grossman of Princeton University was commissioned to do statistical and other analysis for this study).

The Katzenbach report calls for a number of major changes in the operations of the markets.

- That the NYSE expand its DOT system.
- That there is need for a substantial increase in the margin and capital requirements for futures traders.
- That settlement of index futures contracts be changed to physical delivery.
- That there be a merger of the SEC and CFTC.
- That the NYSE initiate trading of stock baskets.

Katzenbach bases the above recommendations on the assertion that speculative activity in futures markets suppresses investment and capital formation. We do not feel that the report offers sufficient evidence to support any of these conclusions.

For instance, Katzenbach offers no evidence to support the claim that the liquidity, low transactions costs, and ability to hedge created by financial futures inhibit investment in capital markets. Indeed, such a finding runs contrary to the evidence and findings of all other studies. In the Study of the Effects on the Economy of Trading in Futures and Options conducted jointly by the Federal Reserve Board, the SEC and the CFTC (December, 1984), the effect of futures and options trading on capital formation was determined to be positive. In Chapter VI, page 12, of the report we are told:

> In addition there is the opportunity to use futures and options to hedge the underwriting of new security issues. Investment bankers interviewed as a part of this study, in fact, did report some use of stock index futures and options for hedging against major changes in market prices when underwriting new security issues.

In the only actual analysis of data that the Katzenbach study appears to have made, it finds "no relationship between any measure of volatility on a day-to-day basis and the intensity of program trading." It also concurred with the other reports that program trades represented approximately 7% of NYSE volume on October 19.

Finally, the credibility of the Katzenbach study must come under question when, after reporting on the general negative nature of futures, the study recommends that the NYSE institute a similar market.

THE BRADY COMMISSION REPORT

The Brady Report, commissioned by the President, emphasizes a number of key facts and makes some unique recommendations:

- The crash involved concentrated selling by a relatively small number of institutional

- Portfolio insurance contributed substantial selling pressure to the stock market. However, its sales represented less than 15% of total equity sales in stocks and futures combined.
- The NYSE DOT system became virtually unusable during the crash, greatly inhibiting the effective operation of the NYSE.
- The interruption of index arbitrage, as a result of DOT inadequacies as well as NYSE policy decisions, was responsible for the large discount that developed between stock index futures and the prices of the related stocks. The Brady Commission clearly feels that the "decoupling" of the markets significantly exacerbated the crisis.
- CME local traders performed well during the crash, buying somewhat more aggressively than normal, and tending to concentrate their buying during periods when prices were falling. The Brady Report concludes that the futures market makers contributed some stabilizing influence to the market, although the net effect was not large.
- NYSE specialists did not uniformly meet their obligation to make liquid markets during the crash. The report states that many specialists were net sellers of stock during critical periods. In addition, the report questions individual pricing decisions made by many specialists.
- The crash brought the U.S. financial system close to disaster. The Brady Report argues that the banking system almost failed to meet the liquidity demands placed on the financial system by the crash, and praised the actions taken by the Federal Reserve Board to preserve liquidity.

THE REPORT OF THE U.S. GENERAL ACCOUNTING OFFICE

The GAO report, issued on January 26, 1988, as well as Mr. Bowsher's testimony before the House Subcommittee on Telecommunications and Finance, provided the following observations and recommendations:

- The GAO agrees with the Brady Report that the nation's stock, options and futures markets have become closely "linked" and that such links necessitate more coordinated domestic and international regulation.
- Mr. Bowsher criticized Federal regulators, including the SEC and CFTC, for not having developed a contingency plan for handling a stock crisis and urged the two agencies as well as the Federal Reserve Board and the nation's securities and futures exchanges to develop a crisis plan within 30-60 days to help restore

automated systems to meet the needs of traders. The unprecedented volumes, coupled with large order imbalances and rapid price movements, strained the market-making capability of the NYSE and the OTC market.

- Repeated breakdowns of computer systems on the NYSE aggravated the selling panic on October 19 and were far more extensive than previously known. These resulted in hundreds of uncompleted trades, and delayed execution for thousands of trades.

SEC REPORT

The SEC report, issued in February 1988, studied the causes and effects, and regulatory ramifications of the market break. Overall, the study concludes:

- No single factor was responsible for the size and breadth of the market break.
- "... institutional stock selling was the largest single direct factor responsible for the initial opening declines on October 19."

The study reported the following effects of the derivative markets:

- "... futures were not the sole cause of the market break ... program trading was a significant factor in accelerating and exacerbating the declines."

The CME Blue Ribbon Commission study and the CFTC study found no evidence that the futures market led the stock market decline. Those studies also concluded that the futures market was a net absorber of selling pressure, reducing the pressure on the NYSE. Furthermore, the stock crash was equally severe in many other countries around the world, despite the fact that none of these countries have a significant stock index futures market.

- Stock index futures have supplanted the cash market as the primary price discovery mechanism, increased the velocity and concentration of stock trading, and increased the risks incurred by specialists.

There is no evidence that volatility increased between the introduction of stock index futures and October 19, 1987. The stock market has become more institutionalized over the last few decades causing greater turnover and larger blocks of stock to be traded irrespective of the futures market. No study of the data has documented any systematic link between price volatility and futures trading.

- Futures strategies had "a significant indirect impact on the market - in the form of negative psychology." This created a market "overhang" effect of discouraging institutional investors, specialists, and reduced liquidity.

This is an unproved and unprovable claim. Portfolio insurance was a statistically insignificant factor in effect discouraging investors is ridiculous. The overhang effect, if it existed, was a consequence of uncountable holders of securities who wanted to sell but were unable to secure buyers or, in many cases, unable to even get their broker to respond. The SEC offered no evidence to support its charge against the futures market.

- "Overall arbitrage programs accounted for selling of approximately 6.1% of total NYSE volume on October 19." Arbitrage sell programs accounted for over 60% in two intervals between 1:30 and 2:00 p.m.

Looking at arbitrage volume during a narrow time period does not provide very useful information. If the time period is narrowed to a small enough time frame, then arbitrage would be 100% of all selling in that time frame. CME statistical analysis shows little correlation between index arbitrage and price moves on a 15 minute interval basis on October 19 and 20.

The study made seven major proposals:

- Creation of a specialist post for trading market baskets of stocks.

No evidence was presented that this proposal would reduce volatility or would be better than the present system. Furthermore, no single specialist would have enough capital to make the proposal work.

- Higher margins in the derivative markets.
    - -- The available leverage in derivative markets should be brought in line with the stock market through the raising of margins.

Futures margins are currently consistent with stock margins for professional traders, given the number of exceptions in the stock market margin system and the differences in market structure. Furthermore, the mark-to-market system in futures maintains a no debt system that creates greater financial integrity at any given level of margins than does the securities system.

- -- "Low margins increase speculative trading in a manner that creates the illusion that there is unlimited liquidity in the market."

The study provided no evidence that the present margin system caused or exacerbated the crash. Because higher margins may reduce liquidity, a different system could increase volatility. On October 19, for example, speculative traders were net buyers in the futures market, while institutions that operate without leverage were heavy net sellers. Higher margins could have reduced buying pressure by forcing the speculative demand from the market.

- The termination of cash settlement with the implementation of physical settlement.

proposal would simply increase the cost of futures trading.

- Price limits should not be imposed on stock trading, although trading halts based on some pre-set standards should be reviewed. The SEC does believe:
  - -- Greater coordination between markets is necessary.

The CME agrees that greater coordination is necessary and is actively seeking increased communication between markets.

  - -- Problems especially exist during the opening when the futures serve as a price setting mechanism before all stocks open.

The CME feels that limits can play a special role when the market opens, since this is a time when investors have the least information about where prices will be. The CME has proposed an opening price limit of 5 index points that would apply for the first 10 minutes of scheduled trading each day.

- A short sale rule in the derivative markets needs to be explored to reduce the potential of excessive speculative selling.

Again, the study provided no evidence and many studies question the reason for the short sale rule in the stock market. The Katzenbach study concluded: "In today's market, we doubt whether the continued existence of a short sale rule is justified..."

- The development of a large trade reporting system similar to the CFTC reporting system may be needed in the stock market. Program trade reporting should be integrated within the context of traditional transaction reporting.
- The SEC found no evidence of frontrunning or manipulation, but the SEC intends to investigate further.

CME rules prohibit frontrunning, including inter-market frontrunning and the CME surveillance staff investigates all charges of manipulation and frontrunning.

CME RESPONSE TO THE BRADY REPORT

Of all the reports to date, we believe that the Brady Report, because of its independence and expertise, will carry the most weight with this Committee. We concur with this view. Accordingly, we wish to focus primarily on its recommendations and to offer our response.

The Brady Report adopts a central theme: that the stock market, the stock options market and stock index futures market are the components of one overall market system. While the CME does not concur with every recommendation of the Brady Report, we do embrace its philosophical theme. We agree that there exists an inter-relationship between all the markets. We also agree that this philosophy demands better markets operate in different fashions and for different purposes. For this reason, the report does not recommend a single regulator for all the markets. Instead, the Brady Commission acknowledges the importance of maintaining the SEC and CFTC as separate federal regulatory authorities. The report argues that coordination must be available in a crisis, and that only the Federal Reserve Board has the necessary system-wide perspective.

The CME does not concur with the Brady Report that the use of the Federal Reserve Board as a coordinator is appropriate or necessary. Toward the goal of inter-market coordination, the Brady report proposes action in four areas:

1. COORDINATION OF "CIRCUIT BREAKERS" WHICH SHOULD BE "RATIONALIZED" ACROSS MARKETS.

As noted in the report, the futures and options markets already have in place the type of circuit breaker mechanisms sought by the Brady Commission. Indeed, the Chicago Mercantile Exchange voluntarily imposed daily price limits during the emergency and recently has proposed to the CFTC a system of refined limits on a permanent basis. (A full explanation of proposed CME rule changes follows).

Additionally, the CFTC has the power to shut down futures markets if an exchange fails to act in an emergency. Currently, however, the securities markets have no similar mechanism and the SEC has no similar power. The financial system also lacks a method of coordinating emergency actions among markets.

The Brady Report argues that circuit breakers work best when their operation is known in advance to all market participants and when the process operates in a coordinated fashion among the markets.

Again we agree. We also believe, however, that the private sector provides the best source for the sophisticated knowledge necessary to create and implement coordinated circuit breakers in a manner that will not impede normal market functions. We believe the Brady Commission would support such a view. We trust that Congressional impetus to achieve coordination between all the exchanges will be sufficient to achieve the desired result. We, at the CME, stand ready to work toward this goal.

2. COORDINATION OF IMPROVED INFORMATION SHARING.

The Brady Report specifically praises the information systems available in the futures industry and recommends that securities exchanges develop similar capabilities.

The CME could hardly object to this view. We agree that improvements in information systems will enhance the efficiency of our markets and overall investor confidence. We also believe that our experience in this area gives us special insight and rather than create another layer of federal authority, existing intermarket structures be utilized. Specifically, we propose that the existing Inter-Market Surveillance Group (ISG), an entity created and operated under the auspices of the SEC, serve as a model for a new Inter-Market Coordination Committee (IMCC) to include all of the futures markets, the CFTC, the National Futures Association, and the Federal Reserve Board.

We also propose that the SEC and the CFTC be granted enhanced powers to specify the timing and format of information flows among the members of the IMCC in the event that the private members are unable to promptly agree or in the event that the SEC and CFTC are dissatisfied with the agreement reached.

The ISG is an organization comprised of U.S. securities and options exchanges and was organized for the purpose of conducting joint surveillance.

A major portion of the ISG's activities focus on the collection, processing, and re-distribution of various types of exchange data necessary to conduct intermarket surveillance. ISG members are required to send detailed trade information to the Securities Industry Automation Corp. (SIAC)1 which handles all data collection and processing. SIAC then produces surveillance reports for each ISG member for each stock or stock option traded at that exchange. More recently, the ISG members who have large trader reporting requirements have been required to provide daily large trader data to SIAC for the production of co-mingled large trader reports.

We propose to expand these activities to include sharing of cash flow data across the commodities and securities exchanges. We feel that this centralized information sharing will greatly improve the financial integrity of all exchanges, and will facilitate detection of intermarket violations such as "front-running."

3. A "UNIFIED" CLEARING SYSTEM.

The October crash generated two types of financial strain on the U.S. market system: solvency pressure and liquidity pressure.

The market system dealt with solvency pressures reasonably well. Despite the unprecedented loss of about $500 billion in total market asset value, only a few firms failed or merged, and no customers lost money because of defaults. Nonetheless, the crash clearly demonstrated a need for better sharing of position data among exchanges, as a means to better control of default risk. Exchange risk management teams will always be in a better position to assess the risk posed by individual traders and firms if the exchange has access to the trader's total position.

More significantly, the crash also demonstrated the danger that liquidity pressure can create for fundamentally solvent firms. As the Brady Commission points out, the difficulty of arranging smooth funds transfers, the asymmetric cash flows produced by many common trading strategies, the reluctance of lenders to extend normal credit in a crisis, and the voracious demand for cash at futures and options exchanges, all combined to strain the liquidity of member firms.

Neither solvency nor liquidity problems can be completely solved by any feasible clearing system. Traders who lose more than the capital in their account will fail, and a large enough price move will always produce some defaults. Furthermore, since futures must demand daily cash settlement, while winning stock positions do not generate cash, many conservative arbitrage and hedge positions will require bank financing on a regular basis.

Even if clearing house reforms cannot solve these problems, however, better coordination of cash flows and position data could significantly reduce liquidity pressures. Lenders who had access to comprehensive information on a clearing firm's position and pay/collect status across exchanges would be much less likely to deny credit to a solvent firm. In addition, exchanges could reduce cash demands on the system by paying out on an intraday basis, in addition to making intraday collects. Exchanges might also coordinate intraday calls to ensure that firms could use pays from our exchange to meet collects by another exchange. Finally, coordinated collection of intermarket information will enhance the security of lenders who finance the carrying costs of the positions.

All of these reforms can be achieved without the creation of a single centralized clearinghouse. The CME believes that with our proposed changes the IMCC could serve as a vehicle for coordinated clearing.

4. COORDINATION OF "CONSISTENT" MARGINS ACROSS STOCK AND STOCK-RELATED PRODUCTS.

The Brady Report unequivocally concluded that as regards "the intramarket financial performance control aspect of margin," futures margins differ "fundamentally" from that of margins on stock investments and that "the financial performance control aspect of futures margins has operated in a sound and effective manner on an intramarket basis."

We agree with this assessment, and we believe that the financial performance of the futures industry during the crash illustrated the value of maintaining the authority for financial and margin decisions in the same place as the expertise -- at the exchanges. We also recognize, however, that the crash demonstrated the unpredictability of the

As part of this re-evaluation, we propose to introduce a better margining system for options, which will provide a much more precise measure of position risk. We also propose to move to a system of risk-based capital requirements, which will provide a substantially higher level of investor protection than the system currently mandated by Federal law. These improvements represent just one aspect of our primary concern: maintaining the financial integrity of our exchange.

Brady clearly agrees that the futures markets are in the best position to make the delicate adjustments necessary to make margins effective, and that their self-interest in the financial security of their markets is sufficient incentive to assure that they do the job correctly.

However, the Brady Commission seems to revive the misconception that "speculation" is distinguishable from and less valuable than "investment." Few, if any, economic studies would agree with this view. Moreover, from this unfounded belief Brady draws the conclusion that it is appropriate to control speculative behavior in order to inhibit overvaluation in stocks. This, the report argues, would reduce the potential for a precipitate price decline fueled by the involuntary selling that stems, for example, from margin calls.

The foregoing might lead the casual reader of the Brady Report to conclude that the Commission actually found that the market was overvalued by reason of "excess speculation" made possible by "low" futures margins. That same reader also may have concluded that the market drop was intensified by the involuntary selling of overextended futures market "speculators" pressed by margin calls. These are not the findings of the Brady Report. Indeed, there is nothing in the Brady Report to support either of those conclusions and the facts are directly contrary to them.

Nevertheless, while recognizing that margins in futures need not be the same as those in stocks, the Commission suggests that they be "consistent" with those of professionals in the stock market. We wish to carefully examine this view and comment on it.

First, the Commission fails to support its assertion that futures margins are significantly lower than the margins imposed on the professional stock market participants whose activities are the focus of the Brady Report. The multitude of exemptions from Federal initial margin requirements that are exploited by those traders allow them to assume large stock positions with minimal outlay and without an obligation to cover unrealized losses on a daily basis.

But even more importantly, the suggestion that

The cost of speculating that the market will go down is equal to the cost of speculating that it will rise. There is no bias in either direction. Indeed, in futures, there is a short for every long. Moreover, the total open futures positions represented less than 1% of the value of the shares listed on the New York Stock Exchange as of October 15, 1987. If every dollar of S&P futures positions represented unwarranted speculative demand, the total impact on the demand in the equity market would still be utterly insignificant.

Indeed, if the futures markets were a home for "excessive" speculative demand, one would expect to have seen the open interest in futures contracts growing at a rapid pace during 1987 when the equity market made its sharpest upturn. That was simply not the case. Furthermore, since the United States has the only well developed futures markets for stock indices, one would expect that any impact of "low futures margins" could be seen by comparing performance of U.S. equity markets to foreign equity markets unaffected by "low futures margins." No such impact can be found. U.S. stock prices rose less than comparable markets that existed without stock index futures contracts, and the U.S. price earnings ratio increase was middling in comparison with the 18 largest industrialized countries.

Moreover, the view that speculation is linked to market instability has been studied at length by our nation's finest economists. See, A Review and Evaluation of Federal Margin Regulations, A Study by the staff of the Board of Governors of the Federal Reserve Bank, December, 1984, or for a comprehensive bibliography see S. Figlewski, Margins and Market Integrity: Margin Setting for Stock Index Futures and Options Working Paper Series #csfm-83, 1984. Direct tests of the effect of margin requirements on price volatility in the stock market have found little apparent relationship.

More fundamentally, "margin" in stock and "margin" in futures are two substantially different things -- only the word is the same. Stock margins limit the extension of credit to purchase an asset. A futures contract is not an asset -- it represents an obligation to perform on a contract in the future. It is therefore not logically possible to discuss futures margin in the context of credit extension. Instead, futures margins are good faith deposits for contract performance. Yet, even in this capacity, futures margins play a substantially different role than securities margins. In contrast to securities markets, futures markets maintain a virtual "no debt" financial system. All futures market positions are marked-to-market at least on a daily basis, i.e., any price changes in futures positions representing

For example, pursuant to normal procedures in volatile market periods, during the October period, our exchange has called for margin payments two and sometimes three times during a single trading session. This financial system, substantially safer than other systems that allow losses to accumulate for many days, avoids the need for high initial margins to maintain financial integrity.

Thus, the differences between the role, function and level of futures and stock margins exist as a natural and necessary result of the very different functions these two markets perform. They are not the result of a regulatory gap or loophole. Perhaps the clearest evidence of this comes from securities options markets whose purpose and function is, in many respects, similar to that of futures markets and whose margins are regulated by the Federal Reserve Board and the Securities and Exchange Commission. Securities options margins are, if anything, lower than comparable futures markets margins.

It is also instructive to take note that foreign futures markets, competing directly with our American futures markets for world business, understand and apply the aforestated different standard between securities and futures margin.

For instance, the following are samples of foreign futures margin as a percentage of contract value on October 16, 1987 as compared with comparable U.S. futures contracts:

LIFFE:	Long Gilt	2.0 %
	Eurodollar	.05 %
	FTSE 100	2.7 %
MATIF:	Notional Bond	4.0 %
TSE:	Yen Bond	3.0 % of nominal value with a minimum of 6 million Yen
HONG KONG:	Hang Seng	7.9 %
SIMEX:	Nikkei	5.7 %
SYDNEY:	All Ordinaries	3.7 %
NEW ZEALAND:	Barclay's Index	4.8 %
CME:	S&P 500 Stock Index	7.1 %
	Eurodollar	.8 %
CBT:	Treasury Bond	2.5 %

Finally, the Brady Commission's hypothesis that large futures speculators were forced to liquidate during the crash and thus caused a downward price spiral is contrary to fact. Speculative accounts were significant buyers on October 19. Rather than exacerbating the decline, speculators helped to cushion the market against the selling of pension funds and other institutional users of the S&P futures contract. Furthermore, whereas a forced liquidation would result in panic selling by speculators and a reduction in the total number of increased significantly.

THE ROLE OF FUTURES

Before concluding, I would like to make a point about the fundamental value of futures markets to the U.S. economy. We have heard some talk -- from the Katzenbach report, for example -- contrasting the role of stock markets in capital formation and investment with the role of futures markets in facilitating risk transfer and speculation. Let's look at that claim.

First, most conservative investment strategies would classify as "speculation" under U.S. commodities law. If you were to buy a stock portfolio and hold it, the CFTC would consider you to be a speculator, because your position increases your risk. In fact, the CFTC has faced pressure recently to change the hedging/speculation distinction, since many conservative investment firms take offense that we classify their normal business activity as "speculative" when conducted in our market. Speculation, the process of accepting risk in return for financial gain, forms the heart of any capital market.

Second, let us examine the role of both stock and futures markets in capital formation. Many laymen are unaware that the vast majority of "new issues" -- i.e., companies that have just gone public and issued equity to raise capital -- would not trade on the NYSE for years. The large, established companies that trade on the big board may occasionally issue new shares, but these shares account for a tiny percentage of annual trading on the NYSE. Furthermore, the actual process that firms use to issue new equity by-passes the stock market entirely.

If the NYSE does not directly support capital formation, then what role does it play? The answer, of course, is that it provides liquidity to shareholders, allowing them to transfer stock ownership. Although most of these trades have no direct connection to "capital formation," the existence of a good secondary market for stock encourages investors to purchase equity in the first place, and thus helps companies raise capital.

The futures market plays an analogous role. By providing institutional investors with a vehicle for transferring the risk of a stock portfolio, and by providing liquidity for "baskets" of stock, the futures market increases the attractiveness of equities as an investment, and thus indirectly encourages capital formation. The low costs created by efficient market rules and carefully controlled margin requirements provide much of the benefit of these markets.

The rapid and growing worldwide acceptance of that handicapping these markets with unnecessary regulation would do damage to the economy as a whole.

I would also like to take issue briefly with the allegation that futures markets have aided and abetted institutional traders in forcing the "little guy" out of the stock markets. The direct participation of small investors as a percentage of total volume has shrunk as the size of institutions such as pension and mutual funds has grown. This trend has been evident for decades and is unrelated to program trading. It began long before the advent of futures trading of stock indices.

We need to understand that these institutions represent the little guy. Most investors who actively manage their own stock portfolios have far more wealth and income than the average American. In contrast, pension and mutual funds represent investors with far less average income. At least 28 million of pension beneficiaries earn less than $20,000 per year, and would have little chance of competing directly in the stock market against sophisticated, wealthy investors. Professional investment managers represent over 33 million mutual fund shareholders and over 60 million pension plan participants and their beneficiaries. These professionals manage over $2 trillion in assets on behalf of tens of millions of American households. Institutions offer these small investors access to professional management, and an equal opportunity to profit from their investments. Accusing these institutions of discriminating against the "little guy" is absurd.

Government policy should strive to make markets fair and efficient for all investors, but policy should not attempt to dictate the form that investment management takes.

Finally, I would like to comment on improving market access to enhance liquidity and achieve better market balance:

The October crash demonstrated the danger of allowing the stock and futures markets to become disconnected. While trading halts offer one solution to this problem, we can also prevent stock and futures prices from diverging by ensuring that major traders have good access to both markets. Improved access would allow buyers to go to the lowest price, and might prevent the reoccurrence of large futures discounts without the need for index arbitrage.

Regulation currently inhibits many institutions from trading in the futures market. We propose reform of the following regulations:

- The "short-short" rule, which provides disincentives to mutual funds for participation in futures markets.
- Investment Company Act restrictions that

- Restrictions contained in state insurance company regulations that limit these firms' use of the futures markets.

Direct access to the futures markets by a wide variety of institutions could balance buying and selling pressure across markets, and could significantly reduce pressure on the NYSE during periods of price volatility.

CONCLUSION

The CME has a direct and effective proposal for reform that has been publicly available since early February. It includes:

- Creation of an Inter-Market Coordination Committee (IMCC) by expansion of the ISG. IMCC would include all of the futures exchanges, securities exchanges, the CFTC, the SEC, the NFA, the NASD, and the Federal Reserve Board to facilitate coordination of clearing, surveillance and risk management across all securities and commodities exchanges.
- Adoption of coordinated "circuit breakers" on equity products.
- Adoption of a number of specific reforms to improve financial integrity and liquidity:
    - Changes to intraday margin calls.
    - Better option margining systems.
    - Risk based capital requirements.

We hope the CME's proposal is acceptable to the Congress. In our opinion, it offers effective means to implement the necessary market improvements. While it embraces the general philosophy of the Brady Report, the CME's alternative plan has two compelling virtues.

First, we recognize and exploit the existing expertise of the CFTC and SEC and grant the Federal Reserve a voice in all important issues without creating a new agency division, new staffing requirements and a new and unnecessary layer of regulation.

Second, we put the burdens, costs and consequences exactly where they belong on the private sector -- on the exchanges. The markets and their users will directly pay for enhanced information systems. They will create, maintain, and bear the total costs of the information exchange systems. They will bear the responsibility for inadequate margins.

The only burden on the budget arises out of the regularization of SEC/CFTC cooperation and the SEC's administration of improvements to stock and option exchange audit trails. This surely is the proper allocation of costs and resources.

* * *

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United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

May 4, 1988

Mr. John Sandner
Chairman
Board of Governors
Chicago Mercantile Exchange
30 South Wacker Drive
Chicago, Illinois 60606

Dear Jack:

On behalf of the Senate Committee on Agriculture, Nutrition, and Forestry, I want to thank you for your testimony before the Committee last Wednesday, April 27, concerning the October 19th market crash and steps taken since then to improve market systems. Your testimony helped in establishing a record which will aid the Committee in its role as overseer of the U.S. futures markets.

In order to complete the hearing record, the Committee would appreciate your answers to the enclosed questions as soon as possible. Please return your responses to Christine Sarcone, Chief Clerk.

Again, I thank you for appearing before the Committee. If you have any questions, please contact Chuck Riemenschneider at 224-2035.

Sincerely,

Patrick

PATRICK LEAHY
Chairman

PJL/jp

QUESTIONS FOR JOHN SANDNER
CHAIRMAN, BOARD OF GOVERNORS
CHICAGO MERCANTILE EXCHANGE

SUBMITTED BY SENATOR PATRICK LEAHY

1. Most economists would say that arbitrage has a positive effect on both securities and futures markets because it keeps the markets in line and smooth out any price disparities. Do you agree with this view?

2. The SEC report on the October market crash stated that "futures and options on stock indexes offer significant benefits to today's capital markets... (by adding) substantial liquidity and pricing efficiency to equity markets generally. Moreover, using these products, investors are able to control the risks in their portfolios in accordance with their particular needs. As a result, the markets perform their various economic roles more efficiently." (pp. 3-4-3-5). Contrary to the SEC's conclusions, former Secretary of the Treasury Donald Regan, as recently as last week, has recommended that index futures products be outlawed. What would the consequences of the Regan approach be?

3. The MERC has announced plans to establish a round the clock, round the world electronic trading system. Can the regulators keep up with your innovations?

4. Can our regulatory structure handle the additional stress that such a system will place on it?

5. Many reports, including the Brady Commission Report, urged the recognition of the existence of one "global market" to be monitored and coordinated by a single regulatory body (p. VII). During and after the stock market break, many Americans came to realize that the exchanges in Tokyo, London and the U.S. have profound effects on each other. In light of this international market, would you favor statutory creation of an intermarket coordinating council -- as I have proposed in draft legislation -- to coordinate the U.S. response to events in the "global" markets?

6. The Katzenbach study of program trading, commissioned by the NYSE, recommended that the NYSE consider trading blocks of stocks representing various indices. Do you consider this to be a beneficial trading instrument, and if so, what advantages would it offer to investors over trading futures contracts on stock indices?

RESPONSES TO QUESTIONS
SUBMITTED TO JOHN SANDNER
BY SENATOR PATRICK LEAHY

1) I wholeheartedly agree with the commonly accepted belief among economists and market analysts that arbitrage, **in any market**, including the linked markets of securities and equity index futures, keeps both markets in line, and smoothes out price disparities. Arbitrage is essential for the normal functioning of markets.

2) Mr. Regan's suggestion to ban equity index futures would deprive the securities market of a valuable hedging instrument and risk-shifting vehicle. Also, index futures have reduced transaction costs for equity market participants. Most estimates put the transaction costs of futures at between one-fifth and one-tenth the transaction cost of an equivalent basket of stocks.

3-4) The Presidential Working Group on Financial Markets made the following statement on the subject of index futures and program trading; **"It is unrealistic (and perhaps counterproductive) to try to undo the changes in financial markets or market strategies brought about by improvements in telecommunications and computer technology"**
This thought applies equally to the development of

electronic trading. The world is constantly evolving through technological and economic change. Regulators must cope with that change, not stifle it. The regulatory agency overseeing the futures industry, happily, has not hesitated to embrace, and even pursue, such changes in the past. It was through CFTC initiative that our CTR (Computerized Trade Reconstruction) was developed to provide the most comprehensive audit trail of any organized market.

In this vein, the CME's electronic trading system, PMT, (Post Market Trading) will provide an even more detailed account of trading activity, improving regulatory compliance and surveillance oversight. With this system's on-line tie-in to our clearinghouse, we will have the potential for better real-time risk management. These changes all tend to make the CFTC's job easier, not harder.

Futures, more than equities, are global in nature. Foreign currencies, Eurodollars and Treasury instruments now trade 24 hours a day. The CFTC has thus already become accustomed to global markets, and should have no problem overseeing our proposed worldwide trading system.
Furthermore, our futures contracts currently trade at night, legally, through a process known as Exchange-For-Physicals (EFP's). PMT will provide a more efficient, centralized market for these transactions and for similar demand around the world. This change will again make regulatory oversight

easier, not harder.

Communications have evolved from telephones to computers. Financial markets have taken advantage of these developments to give the lowest transaction costs and access to the broadest, most competitive markets to the investing public. We are confident that we can cooperate with the CFTC in this exciting and vital development.

5) As Leo Melamed and I have testified before the U.S. Senate Committee on Banking, Housing and Urban Affairs, the Chicago Mercantile Exchange favors private sector initiatives to achieve market coordination, rather than legislative action.

Our adoption of pre-determined circuit breakers, our initiative of raising our margins substantially, our participation in the inter-market financial surveillance group, and our numerous initiatives to better coordinate the clearing and settlement process, all provide examples of the CME's progress in achieving the same results desired by the proposed legislation.

In light of these actions by the CME, and similar efforts by the NYSE and other exchanges, we consider the proposed Bill to be premature. We recommend that this bill be withheld, pending further examination of private sector achievements.

For a detailed exposition of our points of difference with the Bill, I will refer you to Leo Melamed's letter to you of March 23, 1988. Mr. Melamed's views reflect both mine and those of the Board of Governors of the Exchange.

With all due respect, Senator, we urge your committee to heed the recommendation of the Presidential Working Group, comprised of Washington's most respected market regulators: "Recognizing this concern for coordination, the Working Group believes that cooperative efforts under the existing regulatory structure will be more effective and less disruptive than more formal, additional legislated structure."

6) The Chicago Mercantile Exchange does not generally comment on new products, unless we see a legal or regulatory problem with them. An investment vehicle of this type might offer competition to stock index futures. That is what free markets are all about.

The CHAIRMAN. Thank you very much.

I could not but think as I was listening to the testimony of all three of you that the Brady Commission recommended that the markets move toward a unified clearing system. I understand that this concept is also under consideration by Mr. Gould's group.

So I will ask this of each of you, starting with you, Mr. Sandner: What is your reaction to, one, the feasibility, and, second, the desirability of unifying, or harmonizing clearing systems, and permitting cross-margining across the markets?

Mr. SANDNER. I think what happened at the outset, Mr. Chairman, is that unified, the word unified took on different definitions for different people, so I will restrict my answer to how I define what I believe unified meant, and I think you indicated how perhaps you believe it is meant, and that is harmonization.

I believe that it is very, very feasible for the clearing organizations to work together in a coordinated effort at a goal, at allowing information-sharing, information flows, cash flows, cross-margining—all of these items that the Brady Commission identified. I think they are feasible, possible, and I think they are a reality.

The CHAIRMAN. Is that it?

Mr. SANDNER. That is it.

The CHAIRMAN. Mr. Mahlmann.

Mr. MAHLMANN. Mr. Chairman, as we testified before you here today, it is our reading from the Brady Commission, that unified clearing does not mean a single clearinghouse. It would be our feeling that if you had a single clearinghouse you would potentially increase the risk rather than diffuse the risk factors.

But unified clearing should mean the better sharing of the information of pay and collect data that are available on a daily basis, and it is now being done by the Chicago Board of Trade for all futures exchanges in the industry.

As I indicated in my testimony, OCC is joining this daily information sharing. It is then also now available to the banking system that is extending the credit, which was never available before.

We are exploring the capability of including NSCC, the securities clearing arm, to be part of this information sharing system. Once that is done, it would be covering the United States, marketwide.

It is difficult to clear, if not impossible, because of the settlement dates and settlement procedures, the two industry's products in a single entity, but as Mr. Sandner indicated, I think cross-margining, if it is done in an unmonopolistic way, can be accomplished, and I think this data sharing will go a long way to alleviate some of the credit concerns that existed on October 19.

The CHAIRMAN. What about cross-margining across the markets?

Mr. MAHLMANN. Cross-margining? We are in favor of it if it is, as I indicated, is not established in a monopolistic way.

The CHAIRMAN. Mr. Grasso.

Mr. GRASSO. Mr. Chairman, we support the Brady Commission's recommendations. As to whether there should be a unitary clearing organization, and I think the comment has already been made, that it would be very difficult to unify, clearly, the need to share information and to be able to assess risk across product categories is absolutely essential.

That can in fact be done and is being done in terms of the information sharing that is going on between the respective clearing corporations.

So we would support the effort to top down, focus, if you will, on the assessment and the credit standing of the various participants. With regard to cross-margining, we would also be supportive of that proposal.

The CHAIRMAN. I have a follow-up. One impediment many see to harmonizing clearing systems is the 5-day settlement system in the stock market.

Now I have asked Chairman Ruder, Chairman Gramm, and Senator Brady, and they all agree that there is no longer any system requirement which demands a 5-day settlement.

Has the exchange considered a shorter settlement time? How do you feel?

Mr. GRASSO. What we have considered, Mr. Chairman, is shortening the comparison cycle which would in effect take the risk out of the system. And that we believe is critical in terms of looking at the assessment, particularly in the light of an unusually active market such as the one we experienced in October.

Comparing trades on the next day from trade will take that element of risk out of the system. As to whether a shortened cycle is doable, that is something we are looking at, but I must say, in the near-term, our focus has been on shortening the cycle for taking risk out of the comparison, clearance, and settlement process.

The CHAIRMAN. Have you had a chance to see Mr. Ruder's or Senator Brady's testimony on the 5-day settlement issue?

Mr. GRASSO. I have, Mr. Chairman.

The CHAIRMAN. How do you feel about it?

Mr. GRASSO. Well, as I say, I think it is certainly something we should be looking at. As to whether customer behavior on the equity side and practice, in terms of settlement, can be changed in the near-term, I would not be able to assess. But clearly——

The CHAIRMAN. There are no plans at the stock exchange now to do it?

Mr. GRASSO. Not to change it. That is right.

The CHAIRMAN. Mr. Mahlmann, how do you feel about that? Do you think that 5 days is necessary?

Mr. MAHLMANN. Senator, I cannot answer for the other industry. As you know, we settle on the next day. We do not open unless all of our trades are settled, and even during the week of October 19, we promptly opened every contract on time because trades were settled. It is customary in the futures industry.

The CHAIRMAN. And that has not created a problem for you? I mean, is this next day settlement process pretty well settled as doctrine in the futures industry now?

Mr. MAHLMANN. It is next day.

The CHAIRMAN. Nobody has suggested changing it?

Mr. MAHLMANN. No out-trades any longer.

The CHAIRMAN. Mr. Sandner.

Mr. SANDNER. Well, I am a strong advocate of the no-debt system and have lived with it for 15 years in the futures industry, so any system short of that causes me some concern. I do not want to sit here and castigate the 5-day settlement system of the New York

Stock Exchange, but it is a sobering fact of what happened between October 16 and October 19—or October 15 and October 19, when we arrived on the morning of the 20th.

And if someone would have equated the basket of stocks represented by the S&P 500, and the basket of stocks in the cash market at the New York Stock Exchange, and bought those on that Thursday evening, toward the close of October 15, and they would have awakened on Tuesday morning, at the futures end we would have had over $60,000 per contract in the system, and that contract would have been valued at about $100,000 on the morning of the 20th.

The New York Stock Exchange, the individual would have bought the same basket of stocks on that October 15 afternoon, would have arrived Tuesday morning and there would have been zero in the system unless it was paid in voluntarily.

There was no demand for the money, and, indeed, he would not have had to put up any money for another couple of days. That is sort of unsettling, and I think there should be some real revisit of that system because of the nature of the market today and the size of the market today.

The CHAIRMAN. Mr. Grasso, do you want to followup on that?

Mr. GRASSO. Well, I would elaborate on two scores, Mr. Chairman. One, broker-dealer members of the New York Stock Exchange, under our rule 405, have a responsibility to know their customer. Knowing your customer inherently is a factor of knowing the creditworthiness of the customer.

So I think while the settlement practices are clearly different in the two products, I must point out that we did not have, for the 26th of October which was settlement date for the 500-point day, any settlement problems.

But clearly, the responsibility is on the broker to assess the customer and the customer's ability to pay.

But again I must emphasize, we did not have a settlement problem in terms of customer reneges, either on the 26th or the 27th, which were the settlement days for those 2 large trading days of the previous week.

The CHAIRMAN. Does anybody want to followup on that? Leave it alone? OK. The Brady Report said that the October experience illustrated the need for an information trading system incorporating the trade, the time of trade, and the name of the ultimate customer in every major market segment.

The futures clearinghouse and large trader information systems currently allow assessment of trade times by customers. The stock exchanges have no system which details trades and trading times by customer.

Now, in light of the Brady Report statement, I am interested in what type of market information your market can currently provide on an instantaneous or next-day basis, Mr. Grasso.

Can the identity of the customer for each transaction be provided, either instantaneously or daily?

Mr. GRASSO. The answer is no, Mr. Chairman.

The CHAIRMAN. Neither instantaneously nor next day. Can a specific time for each trade be provided?

Mr. GRASSO. Yes, Mr. Chairman.

The CHAIRMAN. It can?

Mr. GRASSO. It can.

The CHAIRMAN. On an instantaneous or next-day basis, is data collected in such a way that frontrunning can be detected?

Mr. GRASSO. Well, that is a difficult issue, Mr. Chairman. There is going to be work done by the intermarket surveillance group, which is a group that includes all equities and options exchanges, and we recently introduced the futures markets into that process, which will be designed to deal with intermarket or interproduct frontrunning.

At present, I think there needs to be greater information sharing between the equities markets and the forward market to better determine whether in fact we have had an instance of frontrunning.

As I mentioned in my opening statement, in the middle of this month, we issued a circular to the member-firm community identifying interproduct frontrunning as a potential violation of the exchange's rules on just and equitable principles of trade.

We intend to reinforce that with a rule proposal, and so I think that the stock side of the business is moving toward the ability to detect, with the cooperation of the futures markets, interproduct or intermarket frontrunning.

With regard to information, I also mentioned in my opening statement that we will be proposing rules for customer identity. That will take the form of an initiative that will most likely be proposed in the next few months, with an implementation over the next year or two, realizing that there is an enormous amount of change that has to take place in the member-firm systems in order to comply.

The CHAIRMAN. Let me see if I understand. I think many people know what kind of information they want to be able to have access to on market transactions. We have enormous numbers of trades. The data is going to have to come out of the information systems that are put in place.

Tell me how that is going to be done at the stock exchange. If I was looking at this time next year, what kind of information would be available to me, and how and why would it be available?

Mr. GRASSO. Well, on the identification of orders, as to the type of order, whether it is a straight stock order, or whether it is related to a derivative product, whether it is retail or institutional, and if institutional, the types of variance that might be under that broad category—that is a proposal that will come in the near-term, and I think that a year from now it will be in place.

With regard to the actual customer identification, therein is a much larger issue for the financial community in terms of reprogramming their systems. Whether on the front end, in other words, in the delivery of an order to an equities market, or on the back end, in terms of maintaining a data file that will allow the SRO's to reach into that file for purposes of regulatory activity—that I think is a longer term initiative, Mr. Chairman, that probably will not come in the next 12 months, but clearly it is a goal that we would like to work toward.

The CHAIRMAN. You have put a 50-point collar system on the use of the SuperDot for limiting index arbitrage trades during volatile markets. However, you do not have any means—as I understand it—to distinguish which basket trades on the SuperDot are in fact index arbitrage trades.

Is that correct?

Mr. **Grasso**. We currently do not have a systemic identification process, Mr. Chairman. We will have, as of the 2d of May, a requirement in place that all broker-dealers file a report with the exchange 2 days after trade date to identify the particular type of activity that would be broadly categorized as program trading.

At the same time, we are working on systems enhancements which will allow us the ability to look into the order flow, either as it is being delivered to the marketplace, or as it is being reported back.

The **Chairman**. Would these allow you to pick out particular trading strategies that are associated with the basket trades and the SuperDot?

Mr. **Grasso**. That is our intention, Mr. Chairman.

The **Chairman**. Will this be enough to police the 50-point collar?

Mr. **Grasso**. We believe it will be.

The **Chairman**. I'd like to ask the two representatives of the futures exchanges the same question. I will start with you, Mr. Sandner, and then go to you, Mr. Mahlmann.

Can you describe what your margin requirements were for stock-index futures contracts during the middle of October last year for both speculators and hedgers, and how they compare with the margin levels today?

Mr. **Sandner**. In the middle of October, before the crash, our margin level for speculators I believe was $10,000 per contract. For hedgers, I believe the initial for hedgers was the same. Maybe it was $7,500.

But we raised our margin shortly thereafter because of market volatility. We then increased our margins, I believe, on two other occasions, subsequent thereto when volatility persisted in the market

We then lowered our margins, we would in a normal fashion, when the volatility subsided somewhat, because we have a very elaborate formula on how to set margins.

We have now voluntarily, even though we think it is unfounded, have raised our margins to a level of 15 percent which has never been a formula for us, but we have raised our margins to accommodate the Brady Commission, and everyone concerned, to approximately 15 percent of the value of the contract.

The **Chairman**. Could that be affected further in a volatile market?

Mr. **Sandner**. If the market became more volatile, or there was an indication that we should raise our margins further from the formulas that we have used over the years, we would certainly do so.

We have a total history, since 1898, of addressing the margin issue on a day-by-day, week-by-week basis.

The **Chairman**. So you could do it virtually instantaneously?

Mr. **Sandner**. Instantaneously.

The **Chairman**. Mr. Mahlmann.

Mr. **Mahlmann**. Mr. Chairman, to the best of my recollection, we had mid-October margins at about 5 percent of the contract value. We currently have our margins, and, again, as Mr. Sandner pointed out, not in regard to volatility, but in addressing the Brady Report, and in addressing Congress' concern, we have margins currently stipulated at 15 percent of contract value and 10 percent at hedge value, for hedgers.

The CHAIRMAN. Do you think that these stock index futures margins are basically consistent with, say, existing securities margins?

Mr. MAHLMANN. When you, number one, apply the purpose of futures margins, or the futures markets' functions that are applicable, and then superimpose on that the different collection procedures, meaning that you cannot enter a futures contract without having money in-house, and then, as Mr. Sandner also explained, that you pay as you go, that there is no credit extension, so you have a tremendously different collections process, on that basis I think they are very consistent and rationalized vis-a-vis the Brady demand that recognizes that there are about 20 percent in the broker-dealer community, or professional marketmaker security field.

The CHAIRMAN. Mr. Grasso, are the margins on the New York Futures Exchange index contract lower than those on other exchanges?

I ask this question because I saw an ad about the New York Futures Exchange in the Times which promoted trading in their stock index futures contract on the basis that its margins were competitive.

In fact, the ad stated: "NYSE index futures margins are very competitive compared to those of other stock index futures."

Is there any possibility that the margins were being kept low for competitive reasons, but that they might have affected the integrity of the market?

Mr. GRASSO. Mr. Chairman, I believe their level in terms of percentage is consistent. I think the size of their contract presents a lesser dollar volume. So from that point of view, I think the ad may well have expressed simply the realities of the monetary differentials.

Clearly we would be uncomfortable if they were competing based on the marginability of their contract.

The CHAIRMAN. I yield to Senator Heflin. I will have other questions, but I will submit them for the record.

Senator Heflin.

Senator HEFLIN. Mr. Mahlmann, you have talked about margins and futures compared with stocks. You have gone into some detail about it, but could you give us a step by step, actual example of how these different systems work in an actual case.

Mr. MAHLMANN. Senator, I will be very glad to. I had appended an example to my written testimony and I would be very happy to walk through this example.

If a market professional, for instance, on October 14—which is the week prior to the dramatic decline—had purchased a major market index on the Board of Trade, one contract, he would have had to pay an initial margin of $4,500 prior to having that trade executed.

If, instead of purchasing that futures contract, he had purchased the actual portfolio of stocks that would comprise the major market index, his initial margin requirement would have been 20 to 25 percent of that level that Mr. Brady indicated was applicable to market professionals.

However, that professional would not have had to post his margins for another 7 days, after he had, on the same day, purchased the actual stocks.

Since futures accounts would have been settled daily, on the next trading day, on the 15th, the same customer that bought the futures contract would have had to pay another $4,500 into his FCM, his clearing firm, that day, because on the 14th the market broke the equivalent of $4,500.

So on the morning of now Thursday, you would have $9,000 in the account of original margin and variation margin, while in the securities end you are still waiting for another 6 more days, or 7 more days at that point.

On Thursday, the 15th, the market dropped an additional $2,350, which again had to be posted that day to the futures account. On that day, even with the market drop, the security purchaser, the basket purchaser of the actual stocks, still had 6 more days in which to put the money up.

Now on Friday, we had the big dramatic drop preceding the bad Monday, and another $5,500 had to be deposited by the futures customer.

At the same token, as the basket value declined, the security customer still did not have to put up any money. On Monday, the 19th, when we had the extreme break, the futures customer had to put up another $27,000 to maintain that futures position, while on the other side, the stock margin would still be zero, and the margin would not be due for another 4 days.

So that by the opening of Tuesday, when we had the turn around, the futures customer would have had in his account $46,000 representing approximately 51 percent of the value of the contact of Tuesday morning, the 20th, or somewhat a little less than 40 percent of the value of the contract that he originally purchased, or what the purchase value was at that point.

So that you have absolutely no debt in the futures system at that time, while on the other side, in the security system, you still have 3 more days in order to pay that original call.

Now, if you took an inventory of the underlying basket's value on Tuesday morning, the 20th, and even if the security customer had paid his margin call, as he would have been required—and he still had 3 more days to do so—but even if that call had been paid early, the equity in the securities basket account would have still been some $8, $9,000 under water, meaning deficit, vis-a-vis the collection process that occurred in the futures industry.

So the collection process, and the levels that we currently have on margins I think harmonize margins in a very dramatic way.

Senator HEFLIN. Mr. Sandner, there has been testimony that the futures industry, since October, has instituted action pertaining to the circuit breakers in margins. Have all of the futures exchanges raised initial margins and improved the price, limit circuit breakers on that stock index futures contract?

Mr. **Sandner**. I do not believe—I believe the primary exchanges have. I do not believe the New York Futures Exchange has. Our information tells us—and Mr. Grasso can correct me—that where our margins are at 15 percent of the value of our contract, which brings them up to around $18,000 a contract, the New York Futures Exchange's margins are around 7 percent to 8 percent, and the value of their contract is around $77,000.

So I do not believe the New York Futures Exchange has done that. I do not also believe when it relates to stock index; there is only a few exchanges that trade the stock index product.

I believe Kansas City has raised their margins and has circuit breakers. I believe Board of Trade has, and, of course Chicago Mercantile Exchange. I think the one outstanding exchange is the New York Futures Exchange. They have not, I believe, done any circuit breakers whatsoever, and they have not increased their margin commensurate with the Brady recommendations, or what the other exchanges have done.

If I may for one moment, Senator, differ a little bit from Mr. Mahlmann, the chairman of the Board of Trade, when he says the margins are harmonized, I am of the considered opinion that the unlevel playing field on the margin issue runs the other way. That they are not harmonized.

That if they were to be harmonized, the margins at the New York Stock Exchange would be raised, and I can give you chapter and verse, and analysis, empirical quantitative analysis of that.

But we are not suggesting that the New York Stock Exchange raise margins to meet our proportionate relative percentage of margins. We are not suggesting that.

We do not think margins is really the issue and I could go into that at length also. But if there is a unlevel playing field it runs the other way. That the no-debt system and the percentage of margin that is up relative to the volatility is much more onerous in the futures industry than it is in the cash-equity industry at the New York Stock Exchange.

Senator **Heflin**. There has been testimony that the industry of futures, and in effect the industry dealing with stocks, is global in nature. We have heard testimony of the Tokyo exchange, London exchange, and other exchanges. In a generalized way, what type of regulation goes on in Tokyo, London, other places, generally from the Government pertaining to this global industry? Do you want to——

Mr. **Sandner**. Yes, I would like to offer an answer to that. I think the regulatory environment in the United States of America, contrary to what some people seem to print, is a very strenuous regulatory environment.

When Senator Leahy asked about the reconstructing, trade reconstruction, it was—in our industry we have a very finite, definitive computerized trade reconstruction, and that was, for lack of a better term, forced on our industry by this committee, and we are very happy that they did. They gave us the impetus to put that system together.

By this committee, which has jurisdiction over our industry, and by our regulator. We can produce, under the auspices of our computerized trade reconstruction, and this committee, and our regulator, an up-to-the-minute—in times up to 10 seconds—computerized trade reconstruction.

That is just one part of the regulatory environment that rests in the United States. We think it is a healthy regulatory environment, but the regulatory environment outside the United States is much more lax than the regulatory environment here.

Senator **Heflin**. What about margins, circuit breakers, in the other markets?

Mr. **Sandner**. I think if you go through, Senator Heflin, the futures markets that exist offshore, you will see the average percentage of margin that is put up relative to the value of the contract is between 2 percent and 7 percent, depending on the contract.

There is no futures contract outside of the United States that has near or even 50 percent of the margin that we put up in the stock index future today.

Senator **Heflin**. Is there any effort going on relative to treaties that might exist, in which a number of countries might enter into any treaties?

Or is the climate such in those other countries that they consider themselves in a real advantageous position, and therefore, do not want to have any type of universal, worldwide approach toward regulating these markets?

Mr. **Sandner**. I think it is very correct to say it is an advantage, shortrun advantage in my opinion—only shortrun—not to have regulation because it costs to have regulation.

In the long-run, without regulation, you will not have the integrity of a marketplace and people will not be attracted to it.

But one could—I do not know, I cannot get into the minds of the regulators in Japan and in London, and in other industrial countries. One could find motivation in having a less expensive regulatory environment, if you will, than that in the United States, and that would create an advantage to move our market offshore because cost is a critical factor in trading all markets.

Senator **Heflin**. Well, is any ongoing effort being made by anybody relative to adopting any type of uniform approach relative to treaties, or any other negotiations to date, that anyone knows about?

Mr. **Sandner**. Not to my knowledge. As an exchange, we have talked to the Ministry of Finance in Japan, they have looked at our regulations, and they have gone to the Diet, and they have digested, and what have you, but there is no—we are not in a position to talk about treaty or whatever.

I think that is the Government of the United States who should go over there and suggest to them that they ought to coordinate, somehow, a regulatory environment that serves the world.

Senator **Heflin**. Well, in other areas, it is pretty difficult to get them to agree.

Mr. Mahlmann, there has been mention about the CTR-plus computerized system. Has this helped detect and deter potential front-running abuses?

Mr. MAHLMANN. Senator, our CTR system, as Mr. Sandner explained, we do have to be thankful to this committee for having implemented, together with our regulator, about a year ago—has proven that it can detect and does detect if there is any frontrunning within the futures industry only, because that is what it was developed for.

It does not, as such, can detect any frontrunning on intermarket relationships between the stock exchange and the futures exchange.

I understand from Mr. Grasso's testimony that the stock exchange is taking some steps, which may take some time. They are first steps to potentially detect intermarket frontrunning, so I welcome those first steps that are being taken.

But they will not currently detect between intermarket frontrunning a customer order.

Senator HEFLIN. Thank you. That is all I have, Mr. Chairman.

The CHAIRMAN. Thank you. In the aftermath of the October events there has been a lot of discussion about having one regulator oversee the activities of the financial markets. The SEC has willingly recommended itself for that role. In spite of its claim that it is better suited to handle the job, however, I understand that the SEC received thousands of complaints after the stock market break from investors in the markets it regulates, particularly the stock index options market. The CFTC, on the other hand, received only a few complaints.

In light of these statistics—and I will toss this out as the last question—instead of giving the SEC jurisdiction over the stock index futures markets, would it make more sense to give the CFTC jurisdiction over stock index options? Mr. Grasso.

Mr. GRASSO. Mr. Chairman, we have said publicly, that we believe that stock and stock-related products would benefit in the ultimate from having a single regulatory decisionmaker.

We have not attempted to identify which of the three or four candidates that should be, but rather, have taken the posture that in the ultimate, someone must make a decision that relates to common products, and it would be desirable to centralize that process.

The CHAIRMAN. Would you like an opportunity to call attention to your testimony and recommend a particular one this morning, Mr. Grasso, or would you just as soon pass on that?

Mr. GRASSO. In light of the fact that I will not take office until the 2d of June, Mr. Chairman, I am going to respectfully defer.

The CHAIRMAN. I can see how you got elected in the first place. I do not blame you. My question was facetious. I did not expect you to take, nor would it be appropriate to expect you to take a position on that last question.

Mr. Mahlmann, do you think that instead of giving the SEC jurisdiction over the stock index futures market, it would make more sense to give the CFTC jurisdiction over stock index options?

Mr. MAHLMANN. Senator, we have continuously stood on the position as Congress has approved, that markets should be regulated by the function that they perform. Futures markets perform a price discovery and risk-transfer function. It is well regulated by the regulator that it has.

Securities markets are delegated to perform an equity formation function, and it is well regulated in its field. So in order to be fair with our past position, we are I think well regulated on our side. Congress has seen fit—and I think wisely so—to put the regulation where it is, and markets should be regulated and looked at by function and not by interlocking products.

As I indicated in my testimony, we would fractionalize the whole oversight, increase the governmental cost of looking at the futures industry, if every product was combined with its underlying product.

The CHAIRMAN. Mr. Sandner.

Mr. SANDNER. I agree 1,000 percent with Mr. Mahlmann and the Board of Trade, but if I am to answer your question, which was, really, would it make more sense to merge the SEC into the CFTC, rather than the CFTC into the SEC—if that is the question that I am to answer, A or B, and not just leave them where they are—given the evidence—and I live by the maxim over the years, if it ain't broken don't fix it—the CFTC performed astonishingly well, and all the reports that have been printed have indicated that fact.

The other maxim I live by is that you don't go from good to bad, and the CFTC has performed astonishingly well, and I think the reports indicated that there was something lacking on the other regulatory agency's side.

So, to take good, to go to bad, I think the maxim should be take bad to go to good. So if I am to answer your question specifically, I would say that CFTC should take over the SEC.

However, I do agree 1,000 percent with Mr. Mahlmann, that the two industries serve completely different functions and should be regulated by separate regulatory agencies.

The CHAIRMAN. And you understand that a takeover probably will not occur in the near future. [Laughter.]

With great relief, perhaps, to both the CFTC and the SEC.

Gentlemen, I thank you very much. Your testimony has been candid and forthcoming, and I appreciate it. We will stand in recess.

[Whereupon, at 12:22 p.m., the committee adjourned, subject to the call of the Chair.]

[Material submitted for inclusion in the record follows:]

United States General Accounting Office

GAO

Report to Congressional Requesters

April 1988

FINANCIAL MARKETS

Status of Computer Improvements at the New York Stock Exchange

GAO/IMTEC-88-35

GAO

United States
General Accounting Office
Washington, D.C. 20548

Information Management and
Technology Division

B-229471

April 27, 1988

The Honorable Edward J. Markey
Chairman, Subcommittee on Telecommunications
and Finance
Committee on Energy and Commerce
House of Representatives

The Honorable Doug Barnard, Jr.
Chairman, Subcommittee on Commerce, Consumer
and Monetary Affairs
Committee on Government Operations
House of Representatives

The Honorable William Proxmire
Chairman, Committee on Banking, Housing, and
Urban Affairs
United States Senate

The Honorable Patrick J. Leahy
Chairman, Committee on Agriculture, Nutrition,
and Forestry
United States Senate

The Honorable Fernand J. St. Germain
Chairman, Committee on Banking, Finance, and
Urban Affairs
House of Representatives

The Honorable Edward R. Madigan
House of Representatives

This report is in further response to your requests and provides an update on the New York Stock Exchange's improvements to its automated order processing systems since our January 1988 report.[1] In that report, we pointed out that during the week of October 19, 1987, the Exchange experienced an unprecedented and unanticipated volume of stock trades (about 600 million shares on both October 19 and 20, 1987) that caused some of its automated order processing systems to significantly delay routing some trading orders to the Exchange's trading floor for execution. These problems included limitations in the ability of some systems' software to handle the volume of transactions, antiquated equipment that could not handle the volume of odd lot orders,[2] and backups on card printers that print orders and administrative messages on the trading floor from member firms and other exchanges. The Exchange's problems with its automated systems were believed by some to have contributed to an inability to maintain orderly markets and raised questions about their capability to provide fair and equitable treatment to all market participants during these unprecedented trading volumes.

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[1] Financial Markets: Preliminary Observations on the October 1987 Crash (GAO/GGD-88-38, Jan. 26, 1988).

In our January 1988 report, we identified a number of changes that had either been made to the systems or were planned to improve performance. For example, immediately after October 19, 1987 the Exchange increased various systems' ability to store and process orders by adding additional disk drives and minicomputers. We also pointed out that the Exchange was planning to replace the entire system that handled odd lot orders; reduce the card printers' work load by moving administrative data not directly associated with executing orders to other printers; reduce reliance on card printers to print orders on the trading floor by increasing the number of electronic display books; and add trading floor space and related equipment. At the time of our January 1988 report, the Exchange anticipated that the systems would be capable of routinely handling a 600-million share trading day by December 1988.

We pointed out, however, that the Exchange's computer problems raised questions regarding whether planned system upgrades would be able to handle anticipated and unanticipated trading volumes, as well as the Exchange's ability to accurately forecast trading volumes and related system requirements.

We also reported in January 1988 that the SEC did not have the technical resources to independently evaluate the specific capabilities of automated trading systems. We expressed our belief that the SEC should expand its capabilities in this area, and obtain the necessary resources to determine whether the exchanges adequately plan for, design, and develop systems necessary to function smoothly.

In this review, we found that since January 1988, the Exchange (1) has made additional upgrades to its major automated order processing systems that encountered problems in October 1987 and, on April 30, 1988, plans a full-scale test of the systems in a 600-million share trading day similar to that encountered in October 1987; (2) plans to obtain an independent assessment of its automated systems; and (3) has improved its process for estimating the computer resources needed to handle anticipated future trading volumes.

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[2] Odd lot orders are trades of fewer than 100 shares.

The SEC plans to review the results of the independent assessment of the Exchange's automated trading systems, but has no plans to develop the technical capability to independently conduct such assessments. We continue to believe that the SEC needs to expand its technical capability to review exchanges' independent assessments and conduct its own assessments, as necessary.

Status of Automated Systems Improvements

Eleven major computer systems now support stock trading at the Exchange.[3] Members of the Exchange can place orders through about 600 dedicated communications lines, then the systems route the orders to the Exchange's trading floor for execution. Orders routed through the systems reach the floor two ways. They are (1) printed by card printers located on the trading floor, or (2) displayed on terminals called electronic display books. Specialists on the trading floor use printed or electronically displayed orders to execute trades. As of October 19, 1987, about 60 percent of the traffic through the automated systems was routed to the trading floor through card printers.

Since our January 1988 report, the Exchange has completed several enhancements to its automated order processing systems. The Exchange has phased out the old equipment that handled odd lot orders and added new equipment to another system to handle odd lot processing. The Exchange has also placed 17 more printers on the trading floor to handle administrative messages during heavy trading periods, thus freeing other card printers to print only orders. The number of electronic display books has also been increased from 215 on October 19, 1987, to 361, as of March 31, 1988. The Exchange estimates that this has increased the amount of order traffic displayed electronically from 40 to 78 percent, thus reducing the reliance on card printers to print orders. To spread the work load on the trading floor, two and one half specialist trading posts, including 30 additional card printers and readers, were added.

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[3] In October 1987, the Exchange used 12 major order processing systems to support stock trading. Since then, the system that handled odd lot orders has been removed and its work load consolidated with that of another system. New equipment has been added to the consolidated system to handle the odd lot work load.

According to Exchange officials, these system changes, combined with those discussed in our January report, will allow the routine processing of a 600-million share trading day that has similar order flow patterns as those that occurred on October 19 and 20, 1987, when the daily volumes of shares traded reached about 604 million and 608 million shares, respectively. Although individual systems had been tested to ensure that they met or exceeded this capacity level, the entire automated order processing system is not scheduled to be tested until April 30, 1988. At that time, the Exchange plans to test the systems' ability to handle a work load similar to that experienced the week of October 19, 1987. However, the plans for this test have not yet been finalized.

Although the Exchange has upgraded the capability of its automated trading systems to handle increasing trading volumes, a great deal will depend on the success of the test, scheduled for April 30, 1988, to help ensure that all systems will work smoothly under high order volume processing conditions. In this regard, it would be reasonable to expect that testing would include measures to successfully demonstrate that the Exchange's trading systems are capable of overcoming the processing problems experienced in October 1987. Such tests, therefore, should include measures to determine whether (1) floor devices, such as card printers and electronic display books, can efficiently deliver orders to the Exchange's trading floor under high volume conditions, (2) odd lot orders can be processed in a timely manner on the Exchange's upgraded equipment, (3) orders from other exchanges can be executed within specified time limits, and (4) software and hardware limitations have been overcome.

In our January 1988 report on the October 1987 crash, we pointed out that problems in automated trading systems created uncertainties in each individual market they served and may have created problems in others that depend on those markets. Thus, future tests designed to stress the automated systems and electronic linkages of the New York Stock Exchange, its member firms, regional stock exchanges, and intermarket components would be desirable. Such testing could serve to enhance public confidence that all parts of the nation's trading system are capable of performing under various kinds of anticipated trading patterns and associated volumes.

Status of the Exchange's Plans for an Independent Assessment of Its Automated Systems

On February 5, 1988, the Exchange's Chairman and Chief Executive Officer testified before the Senate Committee on Banking, Housing, and Urban Affairs that the Exchange intended to initiate an audit of its automated trading systems every 12 to 18 months to help ensure proper operation.

Exchange officials stated that they are in the early stages of initiating an independent assessment of their automated order processing systems. As of March 31, 1988, the Exchange had contacted three firms that perform computer systems reviews and have obtained proposals from each of them. The scope of the review is anticipated to include (1) an evaluation of the Exchange's computer capacity planning process, (2) a detailed evaluation of the capacity of each major order processing system, and (3) an evaluation of the Exchange's ability to monitor processing work loads on its major systems during operation. The Exchange anticipates selecting a firm by the end of April 1988.

Enhancements to the Exchange's Systems Capacity Planning Process

As discussed in our January 1988 report, the Exchange's automated order processing systems were not designed to handle the high trading volumes that occurred during the week of October 19, 1987. At the time of the October 1987 crash, the Exchange was updating its systems to routinely handle a 400-million share trading day by the end of 1987. A volume of 400-million shares is roughly two and one half times the average daily trading volume during 1986, and 1.6 times the highest volume day during 1986. Prior to October 1987, the Exchange believed that this amount of computing capacity would be sufficient to handle any peak trading day.

Since October 1987, however, the Exchange has modified its overall systems capacity targets and is planning to have its systems capable of routinely handling a 600-million share trading day by May 1988 and a 1-billion share trading day by December 1989. Assuming present rates of volume growth, Exchange officials said that this represents the development of a system that can process roughly 5 times the average daily trading volume the Exchange expects to receive. Exchange officials consider this target to be conservative, since, on an average day, the systems would operate at 20 percent of total capacity.

In addition to raising its overall computer capacity goals, the Exchange has also refined how it translates anticipated trading volumes into associated systems requirements. For example, the Exchange now will estimate the capability of subsystems supporting individual trading posts to handle anticipated trading volumes. Prior to October 1987, it estimated the effect of volume only on the entire system that supports all trading posts. This is a significant change because during October 1987, the volume of orders overwhelmed the ability of some subsystems to print orders at some trading posts. In addition, the Exchange has established system performance goals, such as those for delivering orders to the Exchange floor and reporting executed trades to member firms. These goals will be considered as part of an overall assessment of the systems' capabilities to meet the Exchange's needs.

SEC's Plans to Expand Its Review of the Exchange's Computer Systems

In our January 1988 report, we pointed out that the SEC did not independently evaluate the specific capabilities of the automated stock trading systems or assess the extent to which the New York Stock Exchange and other exchanges purchased sufficient computer resources to efficiently process stock trades. We also pointed out that the SEC did not have the resources to determine whether systems are designed to effectively handle increasing trading volumes. We expressed our belief that given the intermarket consequences of trading systems breakdowns, the SEC should expand its capabilities in this area.

According to the Director of SEC's Division of Market Regulation, the SEC has no current plans to acquire additional technical resources to independently assess the Exchange's trading systems. However, the Director agrees with the need for an independent assessment of the trading systems and the Exchange's plans to contract for an assessment. The Director said that the SEC plans to review the results of the Exchange's independent assessment and believes this review fulfills the SEC's regulatory responsibilities. We agree that the SEC should review the Exchange's independent assessment of their automated systems, but continue to believe that the SEC needs the technical capability to evaluate the operations of automated trading systems. The SEC needs sufficient technical ability to review independent assessments, such as the one planned by the New York Stock Exchange, and to conduct its own assessments when independent assessments have not been made or are inadequate.

Objectives, Scope, and Methodology

Our objectives were to determine the status of the Exchange's (1) corrective actions to its automated order processing systems since January 1988, (2) plans for an independent assessment of its computer operations, and (3) efforts to improve its systems capacity planning process.

In addition, we determined the SEC's plans to review the adequacy of the Exchange's automated order processing systems.

Our review was limited to only those automated systems that support the execution of stocks traded on the floor of the New York Stock Exchange. We did not review other methods with which stocks are traded on the Exchange floor, the Exchange's post-trading settlement or clearance functions, and computer systems that did not experience difficulties in October 1987.

At the New York Stock Exchange, we met with the Executive Vice President for Capital Markets and the Senior Vice President for Equities to obtain updated information on planned or completed improvements made to the Exchange's order processing systems since January 1988. We also met with the Securities Industry Automation Corporation's President and the Vice President of Computer Operations to obtain detailed information and available documentation on upgrades to the Exchange's automated order processing systems.[4]

We also toured the floor of the Exchange to observe improvements such as the addition of two and one half trading posts and more electronic display books and card printers. In addition, we toured the Exchange's computer facility to observe upgrades made to computer hardware, such as the removal of the Automated Pricing and Reporting System, which was used to process odd lot orders, and the expansion of the Limit Order System to handle both limit and odd lot orders.

To understand the methodology followed at the New York Stock Exchange to estimate future trading volumes and associated system requirements, we met with the Exchange's Executive Vice President and Chief Administrative Officer, and the Senior Vice President for Technology and Product Development. We also obtained and reviewed available documents from officials in the Operations, Research and Analysis Division on the Exchange's computer capacity modeling process.

At the Securities and Exchange Commission, we met with the Director, Division of Market Regulation, and the Associate Director of the Office of Self-Regulatory Oversight and Market Structure to determine the Commission's plans for reviewing the adequacy of the Exchange's automated order processing systems.

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[4] The Corporation is wholly owned by the New York and American Stock Exchanges and operates these exchanges' automated trading systems.

Our review was conducted between March 7, 1988, and April 19, 1988. Because detailed data on systems' performance after the upgrades were not available during our review, we were unable to independently evaluate the current performance capabilities of the Exchange's computer systems. Our work was performed in accordance with generally accepted government auditing standards.

We discussed the facts contained in this report with senior officials of the New York Stock Exchange, Securities Industry Automation Corporation, and the SEC, who agreed with the facts presented. We are providing copies of this report to other interested Members of Congress, executive branch agencies, and the public.

Ralph V. Carlone

Ralph V. Carlone
Director

United States General Accounting Office

GAO

Report to the Chairman, Committee on
Agriculture, Nutrition, and Forestry, U.S.
Senate

April 1988

NEW YORK STOCK EXCHANGE

Capability of Automated Systems to Identify Program Trading

GAO

United States
General Accounting Office
Washington, D.C. 20548

Information Management and
Technology Division

B-229471

April 27, 1988

The Honorable Patrick J. Leahy
Chairman, Committee on Agriculture,
Nutrition, and Forestry
United States Senate

Dear Mr. Chairman:

This report responds to your March 4, 1988, request that we (1) describe the computer systems of major New York Stock Exchange member firms that are linked to the Exchange and used for basket trades,[1] (2) determine whether the Exchange's and members' systems have the capability of identifying basket trades and differentiating between trading strategies such as index arbitrage and portfolio insurance,[2] and (3) determine whether the Exchange's and members' systems have been improved since October 1987 to permit more accurate reporting of various program trading strategies.

The computer systems used for basket trading by the 10 member firms we reviewed ranged from large scale computers to a microcomputer.[3] The firms used either their own software, software provided by the Exchange, or both, to transmit basket trades to the Exchange. Both the Exchange's and these member firms' computers can identify basket trades. The Exchange's computer systems cannot differentiate between trading strategies such as index arbitrage, although 6 of the 10 member firms' computer systems have this capability. The Exchange has not upgraded its systems since October 1987 to differentiate between trading strategies, although it intends to develop this capability. The lack of this capability restricts the ability of the Exchange to electronically monitor the trading strategies employed by market participants under various market conditions and to electronically enforce rules regarding their use. The four member firms whose computer systems could not differentiate between trading strategies do not have plans to develop this capability because it is not required by the Exchange.

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[1] Basket trades are trades in which many different stocks are traded at once (also referred to as program trades). In this report, we use the terms interchangeably.

[2] Index arbitrage refers to a practice where investors attempt to take advantage of spreads that periodically develop between equities, futures, and options markets by buying in the lowest-priced market and selling in the highest-priced market. Portfolio insurance is a term used to define a variety of new sophisticated hedging strategies designed to protect broad-based portfolios against losses while retaining some price appreciation.

[3] A microcomputer is a compact computer with relatively limited capability and capacity.

In conducting our work, we interviewed responsible New York Stock Exchange officials regarding their methods used to identify and track program trading and reviewed pertinent documentation. As agreed with your office, we also surveyed 10 member firms, 7 of which were considered by the Securities and Exchange Commission to be major basket traders. The 10 firms were selected from a list of 31 firms identified by the Exchange as basket traders. We obtained limited information on their systems and the capability of their systems to identify basket trades. Because of time limitations, this information was obtained primarily through interviews. Details of our objectives, scope, and methodology are included in the appendix.

Computer Systems That Are Linked to the Exchange for Basket Trading

At the Exchange, computerized trading systems are used to automatically route orders to buy and sell stocks from member firms and other exchanges to the appropriate trading posts on the floor of the Exchange, for execution. The computer system that provides an electronic link for stock trading between the New York Stock Exchange and member firms is called the Common Message Switch System. This system receives orders from member firms through about 600 dedicated communications lines and forwards them to the trading posts through other systems. Of the 10 firms we reviewed, 5 used one or more microcomputers for basket trading. Two of the firms used large-scale computers and medium-sized minicomputers, respectively. The other 3 firms used combinations of large-scale computers, minicomputers, and microcomputers.

In the summer of 1985, the Exchange developed a software package called the List Order Processing feature to facilitate the rapid transmission of program trades from member firms. This software, which can be installed in member firms' computers, enables these firms to prepackage and route orders involving up to 500 stocks into the Exchange's Common Message Switch System. The use of these automated means, as compared to manual processes, reduces the time required to execute a particular program trade, and therefore increases the probability that the basket of stocks will be bought or sold at or near the advertised price of the stocks when the order was transmitted.

To better interface with their own systems, 4 of the 10 firms we surveyed did not use the List Order Processing feature, but had developed their own software to transmit basket trades. Four other firms used only the Exchange's List Order Processing feature for program trading. The remaining two firms used both their own software and the Exchange's List Order Processing feature. All of the firms we surveyed have the capability of modifying the contents of a particular basket of stocks during a trading day.

Capabilities of Exchange and Member Firms' Computer Systems to Identify Basket Trades and Trading Strategies

The computer systems at the Exchange can distinguish basket trades from other types of trades by analyzing the order traffic on the communications lines. The Exchange periodically asks its member firms to identify the communications lines dedicated to basket trades. At the time of our review, the Exchange's members had identified 56 of the Exchange's 600 dedicated communications lines that were used exclusively for basket trades. In addition, 7 of the Exchange's member firms had provided the Exchange with 24 different branch codes[4] that they use to identify basket trades. Exchange officials told us that sales representatives of the Exchange's Equity Sales and Customer Service Department are in close contact with member firms to ensure that information on communications lines and branch codes for basket trading is up-to-date.

For the 10 member firms we reviewed, we compared the number of communications lines and branch codes shown in the Exchange's records with information obtained from them. We found two instances where Exchange records were inconsistent with information provided to us by the firms. In one instance the Exchange's records showed one more communications line than the firm had identified to us. In the other instance the Exchange identified fewer branch codes than the firm was actually using. We pointed out these differences to the Exchange, which was working with the firms to reconcile the differences at the close of this review. Although the Exchange agreed with these discrepancies, it did not believe that they impaired its ability to identify basket trading.

The Exchange's systems are not designed to differentiate between trading strategies such as index arbitrage or portfolio insurance. According to Exchange officials, the Exchange did not design its systems to distinguish between specific types of trading strategies, because in 1985, when the List Order Processing feature was designed, it was unclear which program trading strategies would be broadly and aggressively used. Exchange officials also said that, because of a desire to maintain a consistent automated order format for both retail and basket trades, it did not want to add additional codes that would complicate the development of the order format.

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[4] A branch code is a code inserted into a transaction sent to the Exchange's Common Message Switch System from the member firms that, in specified cases, indicates that the transaction is a basket trade.

The computer systems of all 10 member firms we reviewed were also capable of identifying program trades. In addition, 6 of the 10 were able to identify, from internal transaction records within their own computers, the types of trading strategies they employed. To distinguish between trading strategies, the 4 remaining firms had to either manually reconstruct records of orders or ask their customers which strategies were employed.

Capability of Computer Systems to Identify Program Trading Strategies Has Not Been Upgraded Since October 1987

Since October 19, 1987, neither the Exchange nor the 10 member firms we reviewed have upgraded their capabilities to identify various program trading strategies. However, on February 24, 1988, the Exchange asked the Securities and Exchange Commission to approve a rule requiring member firms to refrain from using their automated systems to execute index arbitrage strategies on any day that there is a 50-point change in the Dow Jones Industrial Average. This rule was approved on April 20, 1988, for a 6-month period. The Exchange now intends to develop the capability to identify index arbitrage orders. Recommendations on possible alternatives to identify index arbitrage are expected to be presented to the President of the Exchange by the end of April 1988. A timetable for developing this capability has not been determined. Until the Exchange develops this capability, it will be unable to electronically monitor the use of this or other program trading strategies under various market conditions and electronically enforce rules regarding their use.

Officials of the four member firms we reviewed whose systems cannot differentiate between various program trading strategies told us they have not found a need to invest in this type of system improvement since the Exchange does not require their systems to have this capability.

We discussed the contents of this report with senior officials of the New York Stock Exchange and the Securities Industry Automation Corporation, which operates the Exchange's computer systems. These officials agreed with the information presented. We are providing copies of this report to other interested Members of Congress, executive branch agencies, and the public. We will also make copies available to others on request.

Sincerely yours,

Ralph V. Carlone

Ralph V. Carlone
Director

Appendix

Objectives, Scope, and Methodology

Our objectives were to (1) describe the computer systems of major New York Stock Exchange member firms that are linked to the Exchange and used for basket trades, (2) determine whether the Exchange's and members' systems have the capability of identifying basket trades and differentiating between program trading strategies such as index arbitrage and portfolio insurance, and (3) determine whether the Exchange's and members' systems have been improved since October 1987 to permit more accurate reporting of various program trading strategies. As agreed with your office, we obtained only a general description of the types of computer systems (for example, microcomputer, minicomputer, large-scale computer) used by member firms to execute basket trades.

To accomplish these objectives, we interviewed the Vice President of Computer Operations at the Securities Industry Automation Corporation who is responsible for the operation of the Exchange's automated trading systems. We also interviewed the New York Stock Exchange's Senior Vice President for Equities. These officials maintained information on member firms' program trading activities and the capabilities of the Exchange's computer systems. We also reviewed the Exchange's floor standards, and rules regarding trading requirements of Exchange members using automated systems. In addition, we obtained the Exchange's list of communications lines dedicated to basket trading, and compared this list with information obtained from the 10 member firms we reviewed.

As agreed with your office, because of the short reporting time frames, we judgmentally selected 10 firms from a list of 31 firms identified by the New York Stock Exchange as program traders. Seven of the 10 firms selected were considered by the Securities and Exchange Commission to be major program traders. We obtained each firm's automated capabilities to identify basket trading and trading strategies primarily through interviews with officials from the member firms' marketing, equity sales, computer, and/or legal departments. Because of the limited number of firms reviewed, we are unable to project the results of this survey to the total universe of firms who conduct program trading. We discussed the facts contained in this report with the Exchange's Executive Vice President for Capital Markets, the President of the Securities Industry Automation Corporation, and other senior officials of the Exchange and the Corporation. These officials agreed with the facts in this report. This review was conducted from March 8, 1988, to April 19, 1988, and was conducted in accordance with generally accepted government auditing standards.

**KANSAS CITY
BOARD OF TRADE**

April 22, 1988

The Hon. Christopher Bond
293 Russell Office Building
Washington, D.C. 20510

Dear Senator Bond,

As the Senate Agriculture Committee prepares for its upcoming hearing on the implications of the October stock market crash, we would like to respectfully put forth some thoughts for your consideration.

An area of apparent concern among Congressional committees and some securities industry officials is that progress to minimize the possibility of another crash has been too slow. Supporters of that notion seem to want quick answers, quick regulation and quick assurances that Oct. 19 won't happen again..

We would remind those people that the crash occurred a short six months ago, and the major post-crash studies were completed just four months ago. In terms of market history as well as the immense organizational challenge required to propose, then implement, suggested change, that short time frame can hardly be considered foot-dragging.

Those who are looking for quick change seem to favor structural change. However, with all the major studies commissioned by the President, the New York Stock Exchange, the SEC and the CFTC now completed, there seems to be little agreement over what structural change is needed. There is still a great deal of disagreement over what caused the crash in the first place.

It seems, then, that the prudent approach would be a cautious approach. The effort to find a solution that works well for both the securities and futures industries is a tremendous challenge given the complexity of each industry and their different natures. It is our opinion that change should occur only if the change can reasonably be expected to yield better results than the status quo.

But the fact that major structural change has not occurred should not obscure the progress that has been made. On the commodities side, all the major futures exchanges have put into place price limits that restrict the intra-day price fluctuations of stock index futures contracts. These price limits serve the dual purpose of adding order to volatile markets and shoring up investor confidence by limiting risk exposure during each trading session.

The futures exchanges have also raised margin requirements, despite the fact that the previous margins already served their intended purpose of assuring market integrity. The KCBT has instituted price limits and has raised margin requirements.

Board of Trade of Kansas City, Missouri, Inc 4800 Main Street Suite 303 Kansas City, Missouri 64112 (816) 753-7500

Despite assertions to the contrary, it should also be made clear that great strides have been made in the area of intermarket coordination. Just last week, the NYSE conducted a dry run of an intermarket conference call involving all U.S. stock and commodity exchanges. That conference call was the first phase of what is planned to be a full-time intercom system that will link all exchanges together on a permanent basis. This alone is a remarkable accomplishment that six months ago would have been highly unlikely.

Everyone seems to have his own opinions on what and how change should proceed. Unfortunately, many people tend to measure progress by whether their specific agendas are put into place. We urge your committee to take a broad look at the progress that has been made over the past six months, especially given the complexity of the task.

We are encouraged by the thoughtful, rational, well-intentioned attitude of the inter-exchange groups assigned to work out effective intermarket coordination. We believe an effort with the long-term implications involved here should be allowed to proceed cautiously.

Sincerely,

Michael A. West
Mike
Chairman
Kansas City Board of Trade

Michael Braude
President
Kansas City Board of Trade

December 18, 1987

Report On Program Trading
An Analysis of Interday Relationships[1]

by

Sanford J. Grossman[2]

1. Executive Summary

I have reviewed about 9 months of daily observations on stock market volatility and program trading on the NYSE.

I have used two measures of price volatility :

A. the absolute value of the percentage price change (in the S&P 500) from the close of trade on the day before the day under study to the close of trade on the day;

B. the ratio of the day's high price to the day's low price.

I have used 2 measures of program trading intensity. The measures differ regarding whether program trading is measured relative to the size of total NYSE volume or relative to total DOT volume.

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[1] This report was prepared for Riker, Danzig, Scherer, Hyland, and Perretti in connection with Nicholas Katzenbach's study of program trading for the New York Stock Exchange.

[2] John L. Weinberg Professor of Economics, Princeton University. Any opinions or analysis contained herein are the responsibility of the author alone, and not of Princeton University. All data on intraday trading was provided by the New York Stock Exchange.

I have also examined the relationship between the intensity of DOT orders (relative to total NYSE orders), and volatility.

I could find no relationship between any measure of volatility or any measure of program trading intensity. The days in which volatility was high were not, systematically, the days in which program trading intensity was high.

There appears to be a positive relationship between the intensity of DOT volume (relative to NYSE volume) and volatility. There also appears to be a positive relationship between the intensity of non-program DOT volume (relative to NYSE volume) and volatility. These results probably indicate that very volatile days are also days in which the retail-customer generated DOT order flow is large (relative to institutional block trades which are, of course, not DOT delivered).

→ This is a report by Professor Sanford Grossman conducted for the New York Stock Exchange which did what Bowsher suggested and studied program trading, over a year & that's what he concluded

INCLUDE THIS REPORT IN OUR RECORD

2. INDEX ARBITRAGE, FUTURES MARKETS, AND STOCK PRICE VOLATILITY[3]

Before presenting a detailed review of program trading statistics, I provide some background regarding program trading, portfolio insurance and index arbitrage.

Portfolio insurance is a trading strategy by which portfolio managers attempt to reduce their exposure to downside risk by selling after the market falls; thereby reducing their equity position and their exposure to further equity risk. Portfolio insurance is a trading strategy, it is not an insurance product in the usual sense of the term. It is a variant of "stop loss" trading strategies in which risky assets are sold after a price fall in an attempt to lock in previously acquired capital gains.

Portfolio managers can apply insurance strategies to cover a large basket of different stocks. In principle they could trade individual stocks or packages of individual stocks in the stock market to implement their strategies. However, if they really want to trade in packages, it is often argued that they can face a lower transaction cost using a futures market in a stock index.

It should be emphasized that there are a number of other sources of package (or program) trades. Some large investment managers choose to invest the equity portion of their portfolios in an index such as the S&P 500. These managers have various strategies for switching between equity and fixed income investments. If a manager desires to reduce the proportion of equities in his portfolio, then he can sell a package of stocks (i.e., execute a program trade) on the stock exchange.

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[3] This Section draws heavily from my paper entitled "An Analysis of the Implications for Stock and Futures Price Volatility of Program Trading and Dynamic Hedging Strategies", Financial Research Center Memorandum No. 86, Department of Economics, Princeton University.

The New York Stock Exchange (NYSE) is organized around specialists who make markets in small groups of individual stocks. There are no specialists in packages of stocks such as the S&P 500. The S&P 500 futures market is a competitive market maker environment where, in effect, packages of stocks can be traded. For example, if on a particular day one pension fund manager wants to decrease his holdings of the S&P 500 while another pension fund wants to increase its holdings by the same amount, then the former can take a short position and the latter can take a long position in index futures. Thus, the pension funds have transferred the price risk of the S&P 500 in a single transaction rather than in 500 separate transactions on a stock exchange. Further, if the trading times of the two institutions are slightly asynchronized, the market makers in the futures "pit" will take a position on their own account from the first arriving order and then liquidate that position when the offsetting customer order arrives latter. Thus the existence of a futures market insulates the NYSE market makers from having to bear risk associated with slightly asynchronized order flows in baskets of stocks.

In the above example, there was no net desire to sell S&P 500 stocks at the last price. However, now suppose that at the price of the last trade, many pension fund managers want to decrease their holdings of stock, i.e., there is net selling of stock index futures. If futures markets are used to reallocate packages of stock among institutional investors, then what happens when they all want to sell? Who are the "natural" buyers? If there is a large net supply of futures because institutions want to sell stocks, then this will drive the futures price down. At that instant, index futures will be cheaper than the S&P 500 package of common stocks. Index arbitragers will view this differential as a profit opportunity. They will buy futures and sell common stock. They are the "natural" buyers of futures in situations where futures are being sold because investors, in net, want to hold less common stock.

In the above scenario, the index arbitragers are messengers. They merely take the sell orders from the futures market (i.e., buy futures) and bring them to the stock market (i.e., sell stock). If there were no futures market (and thus no index arbitrage), then the institutions would have sold the common stock directly on the stock market, rather than indirectly attempting to eliminate the downside risk by selling the stock on the futures market. In the short run, this selling pressure would have to be born totally by NYSE market makers (given the absence of an arbitrageur-linked futures market).

It is crucial to recognize that the market makers on futures markets combine with the market makers on the NYSE to enhance the overall liquidity of the equity market. A given amount of institutional selling faces the buying power of both the floor traders on the NYSE and the futures markets. Index arbitragers take positions which unify both markets.

The use of portfolio insurance strategies by institutional fund managers will, to some extent, raise stock price volatility irrespective of the existence of futures markets. Futures markets, by permitting low transactions cost trades in packages of stocks, allow institutions to trade more gradually than would be the case if the stock market were used directly. A larger transactions cost will cause insurers to trade less frequently, but in larger amounts per trade. In the absence of a futures market, institutions would face a larger transactions cost, and the stock market would bear the full brunt of portfolio insurance trades - without any cushion provided by the futures market.

Index arbitrage and futures markets are not the crucial issues in understanding large price moves. The crucial problem is that when institutions simultaneously attempt to sell stock to lock in past capital gains, they will fail and stock prices will fall.

3. A Review of the Exhibits

Exhibit 1

Exhibit 1 is a table which defines the variables used in the study. The variable labelled i1 gives the ratio of the volume of program orders arriving (and executed) on the NYSE to the volume of total NYSE orders. Since program volume is the sum of program buys and program sells, this ratio has twice the NYSE volume in the denominator (since NYSE volume is the number of shares which have changed hands). The variable labelled i2 gives the volume of program orders measured relative to total DOT orders. For comparison purposes, the variable labelled i7 gives the intensity of DOT orders, and i8 gives the intensity of non-program DOT orders.

Intensity?

The variables labelled y1, y2, and y4 are measures of market volatility. The ratio of the day's high to the day's low (i.e., the variable labelled y2) gives a very good measure of intraday volatility. The variable labelled y4 measures interday volatility - it is the absolute value of the daily change in the S&P 500. The variable labelled y3 measures the direction of the market - it is simply the change in the S&P 500 from close of trade on one day to the close on trade the previous day.

Exhibit 2

This is a listing of the data from 1/2/87 - 10/30/87. It also includes NYSE volume for each day.

Exhibit 3A

Exhibit 3A presents the data from Exhibit 2 sorted from the day of highest volatility to lowest volatility. In particular the days are listed based upon the value of y2 (the intraday high-low ratio). The volatility measures are listed on the far right of the Exhibit. Though some of the high volatility days are high program trading days (such as 10/19/87), no general pattern is evident. This can be seen by reading down the i1 column (i.e., in the direction of falling volatility) and seeing no tendency for i1 to fall. Further, program trading (as measured by I1) is a very small percentage of NYSE volume. It rises above 10% only on 3/20/87, 6/19/87 (which was one of the least volatile day in the sample), and 9/18/87.

Exhibit 3B

This is the same as Exhibit 3A, except that the days are listed from the highest program trading intensity (as measured by i1) to the lowest. This makes the absence of a pattern even clearer. By reading down the column labelled y2 (i.e., in the direction of falling program trading), it can be seen that volatility does not fall as program trading falls.

Exhibit 4

This is a plot of volatility (y2) and program intensity (i1) for the period 8/24/87 to 10/30/87.

Exhibit 5A

This is the same plot but over the period 1/2/87 to 10/30/87.

Exhibit 5B

This is a scatter plot of volatility against program trading intensity. If there was a positive relationship, then these observations would appear concentrated on a positively slopped line. The fact that there are many observations where program trading intensity is high, and volatility is low (or the reverse), prevents any systematic relationship from being evident.

Exhibit 6

The top of this Exhibit presents summary statistics on the period 1/2/87 to 10/19/87, and the bottom gives statistics on the whole sample. The statistics are for the maximum, minimum, average, and standard deviation of each variable in the study.

Exhibit 7

This is the correlation matrix for all the variables in the study. The first page presents the correlations between the volatility variable y1 (i.e., the natural logarithm of the ratio of the daily high to the daily low), and the program intensity variables. Reading down the column labelled Y1, the first number is 1.0 which is the correlation of Y1 with itself. Reading down the same column, the next number is .019, which is the correlation between Y1 and the program intensity variable I1. For this sample size the correlation is insignificant.

The next matrix gives the same information for y2 (the ratio of the daily high to the daily low). Reading down the first column, it is seen that the correlations with program trading intensities are very small.

It is interesting to note that the non-program intensity variables have a much higher correlation with the volatility measures Y1, Y2, and Y4 than do the program trading intensity variables. (Recall that Y3 is a market direction measure; not a volatility measure.)

The next Exhibit can be used to assess the statistical significance of these correlations.

Exhibit 8

This is a list of regression results. Each regression on the first page is an attempt to find a linear relationship between the dependent variable (Y1 on this page) and various trading intensity variables. These regressions give the statistical significance and magnitudes of any relationships among the variables. None of the relationships between program trading intensity and volatility are statistically and economically significant.

There is a statistically significant, positive relationship between the non-program intensity variables I7 and I8, and the volatility variables. Days in which there is a high volume of non-program DOT orders (relative to NYSE volume) appear to be associated with days in which volatility is high.

Exhibit 1
TABLE OF DEFINITIONS

MISCELLANIES
"orders" = purchases + sales (each measured in shares)
"volume" = shares traded = purchases = sales

ORDERS EXECUTED
td = total DOT orders, in # shares (000,000)
tp = DOT program orders, in # shares (000,000)

INDEX VALUES
sp5h = S&P 500, high
sp5l = S&P 500, low
sp5c = S&P 500, close

TOTAL NYSE VOLUME (in shares)
nyv = NYSE shares traded, in (000,000)
nyo = 2 * nyv = total NYSE orders, in (000,000)

PROGRAM INTENSITY VALUES (in shares)
i1 = (tp / nyo) * 100 = program orders as % NYSE orders
i2 = (tp / td) * 100 = program orders as % DOT system orders

NON-PROGRAM INTENSITY (in shares)
i7 = (td / nyo) * 100 = total DOT orders as % of total NYSE orders
i8 = ((td - tp) / nyo) * 100 = total non-program DOT orders as a % of total NYSE orders

IMPLIED VOLATILITY
y1 = ln(sp5h) - ln(sp5l) = natural log of (S&P high / S&P low)
y2 = ((sp5h / sp5l) -1) * 100 = day's S&P high as % of day's S&P low
y3 = ((sp5c(t) - sp5c(t-1)) / sp5c(t-1)) * 100 = % change in S&P from previous close
y4 = abs[y3] = absolute value of daily S&P % change

Exhibit 2
LISTING OF DATA

date	td	tp	sp5h	sp5l	sp5c	nyv	nyo	i1	i2	i7	i8	y1	y2	y3	y4
01/02/87	28	4	246.45	242.17	246.45	91.88	183.76	2.18	14.29	15.24	13.06	0.0175	1.77	1.77	1.77
01/05/87	61	11	252.57	246.45	252.19	181.90	363.80	3.02	18.03	16.77	13.74	0.0245	2.48	2.33	2.33
01/06/87	64	9	253.99	252.15	252.77	189.30	378.60	2.38	14.06	16.90	14.53	0.0073	0.73	0.23	0.23
01/07/87	59	6	255.72	252.69	255.33	190.90	381.80	1.57	10.17	15.45	13.88	0.0119	1.20	1.01	1.01
01/08/87	65	9	257.28	254.97	257.28	194.50	389.00	2.31	13.85	16.71	14.40	0.0090	0.91	0.76	0.76
01/09/87	65	5	259.20	256.11	258.73	193.00	386.00	1.30	7.69	16.84	15.54	0.0120	1.21	0.56	0.56
01/12/87	64	6	261.36	257.92	260.30	184.20	368.40	1.63	9.38	17.37	15.74	0.0132	1.33	0.61	0.61
01/13/87	58	5	260.45	259.21	259.95	170.90	341.80	1.46	8.62	16.97	15.51	0.0048	0.48	-0.13	0.13
01/14/87	75	8	262.72	259.62	262.64	214.20	428.40	1.87	10.67	17.51	15.64	0.0119	1.19	1.03	1.03
01/15/87	92	9	266.65	262.65	265.49	253.10	506.20	1.78	9.78	18.17	16.40	0.0151	1.52	1.09	1.09
01/16/87	98	28	267.24	264.33	266.28	218.40	436.80	6.41	28.57	22.44	16.03	0.0109	1.10	0.30	0.30
01/19/87	63	9	269.34	264.00	269.34	162.80	325.60	2.76	14.29	19.35	16.58	0.0200	2.02	1.15	1.15
01/20/87	87	14	271.02	267.65	269.04	224.80	449.60	3.11	16.09	19.35	16.24	0.0125	1.26	-0.11	0.11
01/21/87	77	13	270.84	267.35	267.84	184.20	368.40	3.53	16.88	20.90	17.37	0.0130	1.31	-0.45	0.45
01/22/87	78	16	274.05	267.32	273.91	188.70	377.40	4.24	20.51	20.67	16.43	0.0249	2.52	2.27	2.27
01/23/87	144	41	280.96	268.43	270.11	302.40	604.80	6.78	28.47	23.81	17.03	0.0456	4.67	-1.39	1.39
01/26/87	55	8	270.39	267.73	269.59	138.80	277.60	2.88	14.55	19.81	16.93	0.0099	0.99	-0.19	0.19
01/27/87	71	14	274.31	269.61	273.75	192.30	384.60	3.64	19.72	18.46	14.82	0.0173	1.74	1.54	1.54
01/28/87	74	16	275.71	273.03	275.40	195.80	391.60	4.09	21.62	18.90	14.81	0.0098	0.98	0.60	0.60
01/29/87	72	11	276.85	272.54	274.24	205.30	410.60	2.68	15.28	17.54	14.86	0.0157	1.58	-0.42	0.42
01/30/87	63	11	274.24	271.38	274.08	163.40	326.80	3.37	17.46	19.28	15.91	0.0105	1.05	-0.06	0.06
02/02/87	64	12	277.35	273.16	276.45	177.40	354.80	3.38	18.75	18.04	14.66	0.0152	1.53	0.86	0.86
02/03/87	68	7	277.83	275.84	275.99	198.10	396.20	1.77	10.29	17.16	15.40	0.0072	0.72	-0.17	0.17
02/04/87	77	9	279.65	275.35	279.64	222.40	444.80	2.02	11.69	17.31	15.29	0.0155	1.56	1.32	1.32
02/05/87	97	13	282.26	278.69	281.16	256.70	513.40	2.53	13.40	18.89	16.36	0.0127	1.28	0.54	0.54
02/06/87	65	5	281.79	279.88	280.04	184.10	368.20	1.36	7.69	17.65	16.30	0.0068	0.68	-0.40	0.40
02/09/87	56	5	280.04	277.26	278.16	143.30	286.60	1.74	8.93	19.54	17.79	0.0100	1.00	-0.67	0.67
02/10/87	63	9	278.16	273.51	275.07	168.30	336.60	2.67	14.29	18.72	16.04	0.0169	1.70	-1.11	1.11
02/11/87	60	9	277.65	274.73	277.54	172.40	344.80	2.61	15.00	17.40	14.79	0.0106	1.06	0.90	0.90
02/12/87	79	16	278.04	273.89	275.62	200.40	400.80	3.99	20.25	19.71	15.72	0.0150	1.52	-0.69	0.69
02/13/87	80	23	280.90	275.01	279.70	184.40	368.80	6.24	28.75	21.69	15.46	0.0212	2.14	1.48	1.48
02/17/87	84	13	285.49	279.73	285.49	187.80	375.60	3.46	15.48	22.36	18.90	0.0204	2.06	2.07	2.07

Exhibit 2

date	td	tp	sp5h	sp5l	sp5c	nyv	nyo	i1	i2	i7	i8	y1	y2	y3	y4
02/18/87	96	17	287.55	282.97	285.42	218.20	436.40	3.90	17.71	22.00	18.10	0.0161	1.62	-0.02	0.02
02/19/87	73	10	286.24	283.84	285.57	181.50	363.00	2.75	13.70	20.11	17.36	0.0084	0.85	0.05	0.05
02/20/87	73	12	285.99	284.31	285.48	175.80	351.60	3.41	16.44	20.76	17.35	0.0059	0.59	-0.03	0.03
02/23/87	69	13	285.50	279.37	282.38	170.50	341.00	3.81	18.84	20.23	16.42	0.0217	2.19	-1.09	1.09
02/24/87	57	6	283.32	281.45	282.88	151.30	302.60	1.98	10.53	18.84	16.85	0.0066	0.66	0.18	0.18
02/25/87	67	8	285.35	282.15	284.01	184.10	368.20	2.17	11.94	18.20	16.02	0.0113	1.13	0.40	0.40
02/26/87	67	13	284.38	280.73	282.95	165.80	331.60	3.92	19.40	20.21	16.28	0.0129	1.30	-0.37	0.37
02/27/87	60	13	284.55	282.77	284.20	142.80	285.60	4.55	21.67	21.01	16.46	0.0063	0.63	0.44	0.44
03/02/87	64	14	284.81	282.30	283.00	156.70	313.40	4.47	21.88	20.42	15.95	0.0089	0.89	-0.42	0.42
03/03/87	53	7	284.19	282.92	284.12	149.20	298.40	2.35	13.21	17.76	15.42	0.0045	0.45	0.40	0.40
03/04/87	69	7	288.62	284.13	288.62	198.40	396.80	1.76	10.14	17.39	15.63	0.0157	1.58	1.58	1.58
03/05/87	74	6	291.22	288.60	290.52	205.40	410.80	1.46	8.11	18.01	16.55	0.0090	0.91	0.66	0.66
03/06/87	69	8	290.67	288.77	290.66	181.60	363.20	2.20	11.59	19.00	16.80	0.0066	0.66	0.05	0.05
03/09/87	65	7	290.66	287.12	288.30	165.40	330.80	2.12	10.77	19.65	17.53	0.0123	1.23	-0.81	0.81
03/10/87	67	3	290.88	287.90	290.86	174.80	349.60	0.86	4.48	19.16	18.31	0.0103	1.04	0.89	0.89
03/11/87	76	13	292.51	289.34	290.31	186.90	373.80	3.48	17.11	20.33	16.85	0.0109	1.10	-0.19	0.19
03/12/87	60	5	291.91	289.66	291.22	174.50	349.00	1.43	8.33	17.19	15.76	0.0077	0.78	0.31	0.31
03/13/87	59	8	291.79	289.88	289.89	150.90	301.80	2.65	13.56	19.55	16.90	0.0066	0.66	-0.46	0.46
03/16/87	56	9	289.89	286.64	288.23	134.90	269.80	3.34	16.07	20.76	17.42	0.0113	1.13	-0.57	0.57
03/17/87	62	8	292.47	287.97	292.47	177.30	354.60	2.26	12.90	17.48	15.23	0.0155	1.56	1.47	1.47
03/18/87	77	8	294.58	290.87	292.78	198.10	396.20	2.02	10.39	19.43	17.42	0.0127	1.28	0.11	0.11
03/19/87	70	12	294.45	292.26	294.08	166.10	332.20	3.61	17.14	21.07	17.46	0.0075	0.75	0.44	0.44
03/20/87	134	66	298.17	294.08	298.17	234.00	468.00	14.10	49.25	28.63	14.53	0.0138	1.39	1.39	1.39
03/23/87	88	18	301.17	297.50	301.16	189.10	378.20	4.76	20.45	23.27	18.51	0.0123	1.23	1.00	1.00
03/24/87	77	10	301.91	300.14	301.64	189.90	379.80	2.63	12.99	20.27	17.64	0.0059	0.59	0.16	0.16
03/25/87	66	9	301.83	299.38	300.38	171.30	342.60	2.63	13.64	19.26	16.64	0.0082	0.82	-0.42	0.42
03/26/87	72	8	302.72	300.38	300.93	196.00	392.00	2.04	11.11	18.37	16.33	0.0078	0.78	0.18	0.18
03/27/87	70	11	301.40	296.06	296.13	184.40	368.80	2.98	15.71	18.98	16.00	0.0179	1.80	-1.60	1.60
03/30/87	96	19	296.10	286.69	289.20	208.40	416.80	4.56	19.79	23.03	18.47	0.0323	3.28	-2.34	2.34
03/31/87	67	14	291.87	289.07	291.70	171.80	343.60	4.07	20.90	19.50	15.42	0.0096	0.97	0.86	0.86
04/01/87	67	13	292.38	288.34	292.38	182.60	365.20	3.56	19.40	18.35	14.79	0.0139	1.40	0.23	0.23
04/02/87	66	13	294.45	292.02	293.63	183.00	366.00	3.55	19.70	18.03	14.48	0.0083	0.83	0.43	0.43
04/03/87	83	20	301.27	292.30	300.41	213.40	426.80	4.69	24.10	19.45	14.76	0.0302	3.07	2.31	2.31
04/06/87	71	8	302.19	300.41	301.95	173.70	347.40	2.30	11.27	20.44	18.13	0.0059	0.59	0.51	0.51
04/07/87	79	14	303.64	296.69	296.70	186.40	372.80	3.76	17.72	21.19	17.44	0.0232	2.34	-1.74	1.74
04/08/87	73	17	299.18	295.24	297.26	179.80	359.60	4.73	23.29	20.30	15.57	0.0133	1.33	0.19	0.19

Exhibit 2

date	td	tp	sp5h	sp5l	sp5c	nyv	nyo	i1	i2	i7	i8	y1	y2	y3	y4
04/10/87	67	14	293.73	290.94	292.49	169.50	339.00	4.13	20.90	19.76	15.63	0.0095	0.96	-1.60	1.60
04/13/87	77	17	293.36	285.65	285.65	181.00	362.00	4.70	22.08	21.27	16.57	0.0266	2.70	-2.34	2.34
04/14/87	122	36	285.65	275.68	279.16	266.50	533.00	6.75	29.51	22.89	16.14	0.0355	3.62	-2.27	2.27
04/15/87	80	21	285.11	279.17	284.43	198.20	396.40	5.30	26.25	20.18	14.88	0.0211	2.13	1.89	1.89
04/16/87	73	16	289.57	284.44	286.91	189.60	379.20	4.22	21.92	19.25	15.03	0.0179	1.80	0.87	0.87
04/20/87	60	18	288.34	284.57	286.09	139.10	278.20	6.47	30.00	21.57	15.10	0.0132	1.32	-0.29	0.29
04/21/87	83	24	293.07	282.90	293.07	191.80	383.60	6.26	28.92	21.64	15.38	0.0353	3.59	2.44	2.44
04/22/87	74	18	293.45	286.98	287.19	185.90	371.80	4.84	24.32	19.90	15.06	0.0223	2.25	-2.01	2.01
04/23/87	69	17	289.11	284.28	286.82	173.90	347.80	4.89	24.64	19.84	14.95	0.0168	1.70	-0.13	0.13
04/24/87	78	21	286.82	281.18	281.52	178.00	356.00	5.90	26.92	21.91	16.01	0.0199	2.01	-1.85	1.85
04/27/87	104	30	284.45	276.22	281.83	222.70	445.40	6.74	28.85	23.35	16.61	0.0294	2.98	0.11	0.11
04/28/87	72	19	285.95	281.84	282.51	180.10	360.20	5.27	26.39	19.99	14.71	0.0145	1.46	0.24	0.24
04/29/87	65	16	286.42	282.58	284.57	173.60	347.20	4.61	24.62	18.72	14.11	0.0135	1.36	0.73	0.73
04/30/87	66	13	290.08	284.57	288.35	183.10	366.20	3.55	19.70	18.02	14.47	0.0192	1.94	1.33	1.33
05/01/87	55	11	289.70	286.52	288.03	160.10	320.20	3.44	20.00	17.18	13.74	0.0110	1.11	-0.11	0.11
05/04/87	61	17	289.88	286.48	289.36	140.60	281.20	6.05	27.87	21.69	15.65	0.0118	1.19	0.46	0.46
05/05/87	77	18	295.40	289.34	295.34	192.30	384.60	4.68	23.38	20.02	15.34	0.0207	2.09	2.07	2.07
05/06/87	67	8	296.19	293.60	295.46	196.60	393.20	2.03	11.94	17.04	15.01	0.0088	0.88	0.04	0.04
05/07/87	78	16	296.79	294.07	294.71	215.20	430.40	3.72	20.51	18.12	14.41	0.0092	0.92	-0.25	0.25
05/08/87	67	15	296.16	291.73	293.37	162.70	325.40	4.61	22.39	20.59	15.98	0.0151	1.52	-0.45	0.45
05/11/87	97	27	298.69	291.56	291.57	203.70	407.40	6.63	27.84	23.81	17.18	0.0242	2.45	-0.61	0.61
05/12/87	65	11	293.30	290.18	293.30	155.30	310.60	3.54	16.92	20.93	17.39	0.0107	1.08	0.59	0.59
05/13/87	66	11	294.54	290.74	293.98	172.20	344.40	3.19	16.67	19.16	15.97	0.0130	1.31	0.23	0.23
05/14/87	62	9	295.09	292.95	294.24	153.20	306.40	2.94	14.52	20.23	17.30	0.0073	0.73	0.09	0.09
05/15/87	82	21	294.24	287.11	287.43	181.80	363.60	5.78	25.61	22.55	16.78	0.0245	2.48	-2.31	2.31
05/18/87	77	17	287.43	282.57	286.65	175.30	350.60	4.85	22.08	21.96	17.11	0.0171	1.72	-0.27	0.27
05/19/87	81	20	287.38	278.83	279.62	176.40	352.80	5.67	24.69	22.96	17.29	0.0302	3.07	-2.45	2.45
05/20/87	83	18	280.89	277.02	278.21	206.80	413.60	4.35	21.69	20.07	15.72	0.0139	1.40	-0.50	0.50
05/21/87	59	10	282.31	278.21	280.17	165.20	330.40	3.03	16.95	17.86	14.83	0.0146	1.47	0.70	0.70
05/22/87	54	12	283.33	280.19	282.16	136.50	273.00	4.40	22.22	19.78	15.38	0.0111	1.12	0.71	0.71
05/26/87	60	10	289.11	282.16	289.11	152.50	305.00	3.28	16.67	19.67	16.39	0.0243	2.46	2.46	2.46
05/27/87	64	12	290.76	288.21	288.73	171.40	342.80	3.50	18.75	18.67	15.17	0.0088	0.88	-0.13	0.13
05/28/87	66	15	291.50	286.34	290.76	153.80	307.60	4.88	22.73	21.46	16.58	0.0179	1.80	0.70	0.70
05/29/87	62	13	292.87	289.70	290.10	153.50	307.00	4.23	20.97	20.20	15.96	0.0109	1.09	-0.23	0.23
06/01/87	63	15	291.96	289.26	289.83	149.30	298.60	5.02	23.81	21.10	16.08	0.0093	0.93	-0.09	0.09
06/02/87	64	16	290.94	286.93	288.46	153.40	306.80	5.22	25.00	20.86	15.65	0.0139	1.40	-0.47	0.47

Exhibit 2

date	td	tp	sp5h	sp5l	sp5c	nyv	nyo	i1	i2	i7	i8	y1	y2	y3	y4
06/03/87	65	13	293.47	288.56	293.47	164.20	328.40	3.96	20.00	19.79	15.83	0.0169	1.70	1.74	1.74
06/04/87	51	7	295.09	292.76	295.09	140.30	280.60	2.49	13.73	18.18	15.68	0.0079	0.80	0.55	0.55
06/05/87	52	10	295.12	292.82	293.45	129.10	258.20	3.87	19.23	20.14	16.27	0.0078	0.79	-0.56	0.56
06/08/87	53	10	296.99	291.57	296.72	136.40	272.80	3.67	18.87	19.43	15.76	0.0184	1.86	1.11	1.11
06/09/87	65	15	297.58	295.92	297.28	164.20	328.40	4.57	23.08	19.79	15.23	0.0056	0.56	0.19	0.19
06/10/87	81	20	300.80	295.66	297.47	197.40	394.80	5.07	24.69	20.52	15.45	0.0172	1.74	0.06	0.06
06/11/87	58	11	298.93	297.47	298.73	138.90	277.80	3.96	18.97	20.88	16.92	0.0049	0.49	0.42	0.42
06/12/87	66	10	302.26	298.82	301.62	175.10	350.20	2.86	15.15	18.85	15.99	0.0114	1.15	0.97	0.97
06/15/87	73	15	304.11	301.67	303.14	156.90	313.80	4.78	20.55	23.26	18.48	0.0081	0.81	0.50	0.50
06/16/87	65	12	304.85	302.23	304.76	157.80	315.60	3.80	18.46	20.60	16.79	0.0086	0.87	0.53	0.53
06/17/87	66	7	305.74	304.05	304.81	184.70	369.40	1.89	10.61	17.87	15.97	0.0055	0.56	0.02	0.02
06/18/87	64	6	306.13	303.38	305.69	168.60	337.20	1.78	9.38	18.98	17.20	0.0090	0.91	0.29	0.29
06/19/87	151	84	306.97	305.55	306.97	221.70	443.40	18.94	55.63	34.06	15.11	0.0046	0.46	0.42	0.42
06/22/87	87	19	310.19	306.96	309.66	178.20	356.40	5.33	21.84	24.61	19.08	0.0105	1.05	0.88	0.88
06/23/87	74	9	310.25	307.48	308.43	194.20	388.40	2.32	12.16	19.05	16.74	0.0090	0.90	-0.40	0.40
06/24/87	59	7	308.90	306.32	306.85	153.80	307.60	2.28	11.86	19.18	16.91	0.0084	0.84	-0.51	0.51
06/25/87	65	10	309.44	306.87	308.96	173.50	347.00	2.88	15.38	18.73	15.85	0.0083	0.84	0.69	0.69
06/26/87	59	13	308.96	306.38	307.16	150.50	301.00	4.32	22.03	19.60	15.28	0.0084	0.84	-0.58	0.58
06/29/87	56	9	308.15	306.75	307.90	142.50	285.00	3.16	16.07	19.65	16.49	0.0046	0.46	0.24	0.24
06/30/87	78	17	308.00	303.03	304.00	165.50	331.00	5.14	21.79	23.56	18.43	0.0163	1.64	-1.27	1.27
07/01/87	57	9	304.00	302.54	302.94	157.00	314.00	2.87	15.79	18.15	15.29	0.0048	0.48	-0.35	0.35
07/02/87	56	7	306.34	302.94	305.63	154.90	309.80	2.26	12.50	18.08	15.82	0.0112	1.12	0.89	0.89
07/06/87	69	14	306.75	304.23	304.92	155.00	310.00	4.52	20.29	22.26	17.74	0.0082	0.83	-0.23	0.23
07/07/87	77	14	308.63	304.73	307.40	200.70	401.40	3.49	18.18	19.18	15.70	0.0127	1.28	0.81	0.81
07/08/87	76	11	308.48	306.01	308.29	207.50	415.00	2.65	14.47	18.31	15.66	0.0080	0.81	0.29	0.29
07/09/87	73	9	309.55	307.42	307.53	195.40	390.80	2.30	12.33	18.68	16.38	0.0069	0.69	-0.25	0.25
07/10/87	56	5	308.40	306.97	308.38	172.10	344.20	1.45	8.93	16.27	14.82	0.0046	0.47	0.28	0.28
07/13/87	70	18	308.38	305.52	307.63	152.50	305.00	5.90	25.71	22.95	17.05	0.0093	0.94	-0.24	0.24
07/14/87	73	7	310.69	307.46	310.68	186.90	373.80	1.87	9.59	19.53	17.66	0.0105	1.05	0.99	0.99
07/15/87	86	17	312.08	309.07	310.42	202.30	404.60	4.20	19.77	21.26	17.05	0.0097	0.97	-0.08	0.08
07/16/87	78	9	312.83	310.42	312.70	210.90	421.80	2.13	11.54	18.49	16.36	0.0077	0.78	0.73	0.73
07/17/87	103	29	314.59	312.38	314.59	210.00	420.00	6.90	28.16	24.52	17.62	0.0070	0.71	0.60	0.60
07/20/87	68	6	314.59	311.26	311.39	168.10	336.20	1.78	8.82	20.23	18.44	0.0106	1.07	-1.02	1.02
07/21/87	83	14	312.40	307.51	308.55	186.60	373.20	3.75	16.87	22.24	18.49	0.0158	1.59	-0.91	0.91
07/22/87	71	8	309.07	307.22	308.47	174.70	349.40	2.29	11.27	20.32	18.03	0.0060	0.60	-0.03	0.03
07/23/87	69	12	309.63	306.14	307.81	163.70	327.40	3.67	17.39	21.08	17.41	0.0113	1.14	-0.21	0.21

Exhibit 2

date	td	tp	ap5h	ap5l	ap5c	mpv	mpo	l1	l2	l7	l8	y1	y2	y3	y4
07/24/87	63	6	309.28	307.79	309.27	158.40	316.80	1.89	9.52	19.89	17.99	0.0048	0.48	0.47	0.47
07/27/87	51	7	310.70	308.61	310.64	152.00	304.00	2.30	13.73	16.78	14.47	0.0067	0.68	0.44	0.44
07/28/87	71	10	312.33	310.28	312.33	172.60	345.20	2.90	14.08	20.57	17.67	0.0066	0.66	0.54	0.54
07/29/87	86	14	315.65	311.73	315.65	196.20	392.40	3.57	16.20	21.92	18.35	0.0125	1.26	1.06	1.06
07/30/87	88	11	318.62	315.65	318.05	208.00	416.00	2.64	12.50	21.15	18.51	0.0096	0.96	0.76	0.76
07/31/87	75	8	318.85	317.57	318.66	181.90	363.80	2.20	10.67	20.62	18.42	0.0040	0.40	0.19	0.19
08/03/87	91	21	320.25	316.56	317.57	207.80	415.60	5.05	23.08	21.90	16.84	0.0116	1.17	-0.34	0.34
08/04/87	76	14	318.25	314.51	316.26	166.50	333.00	4.20	18.42	22.82	18.62	0.0118	1.19	-0.42	0.42
08/05/87	85	13	319.74	316.23	318.45	192.70	385.40	3.37	15.29	22.06	18.68	0.0110	1.11	0.70	0.70
08/06/87	82	12	322.09	317.50	322.09	192.00	384.00	3.13	14.63	21.35	18.23	0.0144	1.45	1.14	1.16
08/07/87	79	9	324.14	321.82	323.00	212.70	425.40	2.12	11.39	18.57	16.46	0.0072	0.72	0.28	0.28
08/10/87	92	17	328.00	322.97	328.00	187.20	374.40	4.56	18.48	24.57	20.03	0.0155	1.56	1.55	1.55
08/11/87	151	37	333.40	328.08	333.33	280.40	560.80	6.60	24.50	26.93	20.33	0.0161	1.62	1.62	1.62
08/12/87	117	18	334.57	331.08	332.39	235.80	471.60	3.82	15.38	24.81	20.99	0.0105	1.05	-0.28	0.28
08/13/87	106	17	335.52	332.38	334.65	217.10	434.20	3.92	16.06	24.41	20.50	0.0094	0.94	0.68	0.68
08/14/87	85	14	336.08	332.63	333.99	196.10	392.20	3.57	16.47	21.67	18.10	0.0103	1.04	-0.20	0.20
08/17/87	86	19	335.43	332.88	334.11	166.10	332.20	5.72	22.09	25.89	20.17	0.0076	0.77	0.04	0.04
08/18/87	98	19	334.06	326.43	329.25	198.40	396.80	4.79	19.39	26.70	19.91	0.0230	2.33	-1.45	1.45
08/19/87	76	12	329.88	326.54	329.83	180.90	361.80	3.32	15.79	21.01	17.69	0.0102	1.02	0.18	0.18
08/20/87	91	18	335.18	329.92	334.86	196.60	393.20	4.58	19.78	23.14	18.57	0.0158	1.59	1.52	1.52
08/21/87	105	30	336.37	334.31	335.90	189.60	379.20	7.91	28.57	27.69	19.78	0.0061	0.62	0.32	0.32
08/24/87	75	11	335.90	331.92	333.33	149.40	298.80	3.68	14.67	25.10	21.42	0.0119	1.20	-0.77	0.77
08/25/87	86	15	337.89	333.33	336.77	213.50	427.00	3.51	17.44	20.14	16.63	0.0136	1.37	1.03	1.03
08/26/87	80	12	337.39	334.51	334.57	196.20	392.40	3.06	15.00	20.39	17.33	0.0086	0.86	-0.65	0.65
08/27/87	72	10	334.55	331.11	331.38	163.60	327.20	3.06	13.89	22.00	18.95	0.0103	1.04	-0.95	0.95
08/28/87	68	10	331.38	327.03	327.06	156.30	312.60	3.20	14.71	21.75	18.55	0.0132	1.33	-1.31	1.31
08/31/87	82	19	330.09	326.99	329.79	165.80	331.60	5.73	23.17	24.73	19.00	0.0094	0.95	0.84	0.84
09/01/87	96	26	332.18	322.83	323.38	193.50	387.00	6.72	27.08	24.81	18.09	0.0286	2.90	-1.94	1.94
09/02/87	98	23	324.52	318.77	321.68	199.90	399.80	5.75	23,47	24.51	18.76	0.0179	1.80	-0.53	0.53
09/03/87	78	16	324.29	317.40	320.21	165.20	330.40	6.24	17.95	23.61	19.37	0.0215	2.17	-0.44	0.44
09/04/87	65	12	322.03	316.53	316.70	129.10	258.20	4.65	18.46	25.17	20.53	0.0172	1.74	-1.10	1.10
09/08/87	105	22	316.70	308.56	313.56	242.90	485.80	4.53	20.95	21.61	17.09	0.0260	2.64	-0.99	0.99
09/09/87	71	12	315.41	312.29	313.92	164.90	329.80	3.64	16.90	21.53	17.89	0.0099	1.00	0.11	0.11
09/10/87	85	20	317.59	314.07	317.13	179.80	359.60	5.56	23.53	23.64	18.08	0.0111	1.12	1.02	1.02
09/11/87	75	10	322.45	317.13	321.98	178.00	356.00	2.81	13.33	21.07	18.26	0.0166	1.68	1.53	1.53
09/14/87	73	16	323.81	320.40	323.08	154.40	308.80	5.18	21.92	23.64	18.46	0.0106	1.06	0.34	0.34

Exhibit 2

date	td	tp	sp5h	sp5l	sp5c	nyv	nye	11	12	17	18	y1	y2	y3	y4
09/15/87	70	17	323.06	317.63	317.76	136.20	272.40	6.26	26.29	25.70	19.46	0.0169	1.70	-1.65	1.65
09/16/87	81	21	319.50	316.66	314.86	195.70	391.40	5.37	25.93	20.69	15.33	0.0153	1.54	-0.91	0.91
09/17/87	72	18	316.08	313.45	314.93	150.70	301.40	5.97	25.00	23.89	17.92	0.0086	0.86	0.02	0.02
09/18/87	102	39	316.98	314.86	314.86	188.10	376.20	10.37	38.26	27.11	16.75	0.0067	0.67	-0.02	0.02
09/21/87	81	18	317.66	310.12	310.54	170.10	340.20	5.29	22.22	23.81	18.52	0.0240	2.43	-1.37	1.37
09/22/87	100	28	319.51	308.69	319.51	209.50	419.00	6.68	28.00	23.87	17.18	0.0345	3.51	2.89	2.89
09/23/87	108	30	321.82	319.13	321.22	220.30	440.60	6.81	27.78	26.51	17.70	0.0084	0.84	0.54	0.54
09/24/87	63	11	322.01	319.13	319.72	162.20	324.60	3.39	17.46	19.62	16.03	0.0090	0.90	-0.47	0.47
09/25/87	57	11	320.95	318.10	320.15	138.00	276.00	3.99	19.30	20.65	16.67	0.0077	0.77	0.13	0.13
09/28/87	90	25	325.32	320.17	323.20	188.10	376.20	6.65	27.78	23.92	17.28	0.0160	1.61	0.95	0.95
09/29/87	77	16	324.63	320.27	321.69	173.50	347.00	4.61	20.78	22.19	17.58	0.0135	1.36	-0.47	0.47
09/30/87	93	28	322.53	320.18	321.83	183.10	366.20	7.65	30.11	25.40	17.75	0.0073	0.73	0.06	0.06
10/01/87	83	15	327.34	321.87	327.34	193.20	386.40	3.88	18.07	21.48	17.60	0.0169	1.70	1.71	1.71
10/02/87	76	10	328.93	327.23	328.07	189.10	378.20	2.64	13.51	19.57	16.92	0.0052	0.52	0.22	0.22
10/05/87	78	14	328.50	326.09	328.09	159.70	319.40	4.38	17.95	24.42	20.04	0.0074	0.74	0.01	0.01
10/06/87	95	24	328.06	319.17	319.22	176.60	353.20	6.80	25.26	26.90	20.10	0.0275	2.79	-2.70	2.70
10/07/87	92	22	319.38	315.78	318.52	186.30	372.60	5.90	23.91	26.69	18.79	0.0113	1.14	-0.22	0.22
10/08/87	84	22	319.34	312.02	314.17	198.70	397.40	5.54	26.19	21.14	15.60	0.0232	2.35	-1.37	1.37
10/09/87	72	16	315.06	310.98	311.05	158.30	316.60	5.05	22.22	22.76	17.69	0.0130	1.31	-0.99	0.99
10/12/87	72	16	311.07	306.76	309.39	141.90	283.80	4.93	19.44	25.37	20.44	0.0140	1.41	-0.53	0.53
10/13/87	72	16	314.53	309.39	314.52	172.90	345.80	4.63	22.22	20.82	16.19	0.0165	1.66	1.66	1.66
10/14/87	102	32	314.50	306.78	305.23	207.40	414.80	7.71	31.37	24.59	16.88	0.0316	3.19	-2.95	2.95
10/15/87	122	34	305.19	298.07	298.08	263.20	526.40	6.46	27.87	23.18	16.72	0.0236	2.39	-2.34	2.34
10/16/87	178	52	298.87	281.52	282.94	338.50	677.00	7.68	29.21	26.29	18.61	0.0598	6.16	-5.08	5.08
10/19/87	306	86	282.69	225.06	225.06	604.80	1209.60	7.11	28.10	25.30	18.19	0.2280	25.61	-20.46	20.46
10/20/87	254	7	245.62	216.47	236.84	603.90	1207.80	0.58	2.76	21.03	20.43	0.1263	13.47	5.23	5.23
10/21/87	192	7	259.27	236.83	258.39	449.40	898.80	0.78	3.65	21.36	20.58	0.0905	9.48	9.10	9.10
10/22/87	161	5	258.38	242.99	248.25	392.20	784.40	0.64	3.11	20.53	19.89	0.0614	6.33	-3.92	3.92
10/23/87	100	6	250.70	242.84	248.22	245.60	491.20	1.22	6.00	20.36	19.14	0.0319	3.26	-0.01	0.01
10/26/87	135	3	248.20	227.26	227.67	308.80	617.60	0.49	2.22	21.86	21.37	0.0881	9.21	-8.28	8.28
10/27/87	123	2	237.81	227.67	233.19	260.20	520.40	0.38	1.63	23.64	23.25	0.0436	4.45	2.42	2.42
10/28/87	110	2	236.65	226.31	233.28	279.40	558.80	0.36	1.82	19.69	19.33	0.0447	4.57	0.06	0.06
10/29/87	99	2	246.68	233.29	244.77	258.10	516.20	0.39	2.02	19.18	18.79	0.0558	5.76	4.93	4.93
10/30/87	115	2	254.06	244.86	251.79	303.40	606.80	0.33	1.76	18.95	18.62	0.0360	3.75	2.87	2.87

Exhibit 3A

DATA LISTED FROM HIGHEST VOLATILITY DAY TO LOWEST VOALTILITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
10/19/87	7.11	28.10	25.30	18.19	0.2280	25.61	-20.46
10/20/87	0.58	2.76	21.03	20.45	0.1263	13.47	5.23
10/21/87	0.78	3.65	21.36	20.58	0.0905	9.48	9.10
10/26/87	0.49	2.22	21.86	21.37	0.0881	9.21	-8.28
10/22/87	0.64	3.11	20.53	19.89	0.0614	6.33	-3.92
10/16/87	7.68	29.21	26.29	18.61	0.0598	6.16	-5.08
10/29/87	0.39	2.02	19.18	18.79	0.0558	5.74	4.93
01/23/87	6.78	28.47	23.81	17.03	0.0456	4.67	-1.39
10/28/87	0.36	1.82	19.69	19.33	0.0447	4.57	0.04
10/27/87	0.38	1.63	23.64	23.25	0.0436	4.45	2.42
10/30/87	0.33	1.74	18.95	18.62	0.0368	3.75	2.87
04/14/87	6.75	29.51	22.89	16.14	0.0355	3.62	-2.27
04/21/87	6.26	28.92	21.64	15.38	0.0353	3.59	2.44
09/22/87	6.68	28.00	23.87	17.18	0.0345	3.51	2.89
03/30/87	4.56	19.79	23.03	18.47	0.0323	3.28	-2.34
10/23/87	1.22	6.00	20.36	19.14	0.0319	3.24	-0.01
10/14/87	7.71	31.37	24.59	16.88	0.0314	3.19	-2.95
04/03/87	4.69	24.10	19.45	14.76	0.0302	3.07	2.31
05/19/87	5.67	24.69	22.96	17.29	0.0302	3.07	-2.45
04/27/87	6.74	28.85	23.35	16.61	0.0294	2.98	0.11
09/01/87	6.72	27.08	24.81	18.09	0.0286	2.90	-1.94
10/06/87	6.80	25.26	26.90	20.10	0.0275	2.79	-2.70
04/13/87	4.70	22.08	21.27	16.57	0.0266	2.70	-2.34
09/08/87	4.53	20.95	21.61	17.09	0.0260	2.64	-0.99
01/22/87	4.24	20.51	20.67	16.43	0.0249	2.52	2.27
05/15/87	5.78	25.61	22.55	16.78	0.0245	2.48	-2.31
01/05/87	3.02	18.03	16.77	13.74	0.0245	2.48	2.33
05/26/87	3.28	16.67	19.67	16.39	0.0243	2.46	2.46
05/11/87	6.63	27.84	23.81	17.18	0.0242	2.45	-0.61
09/21/87	5.29	22.22	23.81	18.52	0.0240	2.43	-1.37
10/15/87	6.46	27.87	23.18	16.72	0.0236	2.39	-2.34
10/08/87	5.54	26.19	21.14	15.60	0.0232	2.35	-1.37
04/07/87	3.76	17.72	21.19	17.44	0.0232	2.34	-1.74
08/18/87	4.79	19.39	24.70	19.91	0.0230	2.33	-1.45
04/22/87	4.84	24.32	19.90	15.06	0.0223	2.25	-2.01
02/23/87	3.81	18.84	20.23	16.42	0.0217	2.19	-1.09
09/03/87	4.24	17.95	23.61	19.37	0.0215	2.17	-0.46
02/13/87	6.24	28.75	21.69	15.46	0.0212	2.14	1.48
04/15/87	5.30	26.25	20.18	14.88	0.0211	2.13	1.89
05/05/87	4.68	23.38	20.02	15.34	0.0207	2.09	2.07
02/17/87	3.46	15.48	22.36	18.90	0.0204	2.06	2.07
01/19/87	2.76	14.29	19.35	16.58	0.0200	2.02	1.15
04/24/87	5.90	26.92	21.91	16.01	0.0199	2.01	-1.85
04/30/87	3.55	19.70	18.02	14.47	0.0192	1.94	1.33
06/08/87	3.67	18.87	19.43	15.76	0.0184	1.86	1.11
09/02/87	5.75	23.47	24.51	18.76	0.0179	1.80	-0.53
03/27/87	2.98	15.71	18.98	16.00	0.0179	1.80	-1.60
04/16/87	4.22	21.92	19.25	15.03	0.0179	1.80	0.87
05/28/87	4.88	22.73	21.46	16.58	0.0179	1.80	0.70

Exhibit 3A

DATE	i1	i2	i7	i8	y1	y2	y3
01/02/87	2.18	14.29	15.24	13.06	0.0175	1.77	1.77
01/27/87	3.64	19.72	18.46	14.82	0.0173	1.74	1.54
06/10/87	5.07	24.69	20.52	15.45	0.0172	1.74	0.06
09/04/87	4.65	18.46	25.17	20.53	0.0172	1.74	-1.10
05/18/87	4.85	22.08	21.96	17.11	0.0171	1.72	-0.27
09/15/87	6.24	24.29	25.70	19.46	0.0169	1.70	-1.65
06/03/87	3.96	20.00	19.79	15.83	0.0169	1.70	1.74
02/10/87	2.67	14.29	18.72	16.04	0.0169	1.70	-1.11
10/01/87	3.88	18.07	21.48	17.60	0.0169	1.70	1.71
04/23/87	4.89	24.64	19.84	14.95	0.0168	1.70	-0.13
09/11/87	2.81	13.33	21.07	18.26	0.0166	1.68	1.53
10/13/87	4.63	22.22	20.82	16.19	0.0165	1.66	1.66
06/30/87	5.14	21.79	23.56	18.43	0.0163	1.64	-1.27
08/11/87	6.60	24.50	26.93	20.33	0.0161	1.62	1.62
02/18/87	3.90	17.71	22.00	18.10	0.0161	1.62	-0.02
09/28/87	6.65	27.78	23.92	17.28	0.0160	1.61	0.95
08/20/87	4.58	19.78	23.14	18.57	0.0158	1.59	1.52
07/21/87	3.75	16.87	22.24	18.49	0.0158	1.59	-0.91
01/29/87	2.68	15.28	17.54	14.86	0.0157	1.58	-0.42
03/04/87	1.76	10.14	17.39	15.63	0.0157	1.58	1.58
03/17/87	2.26	12.90	17.48	15.23	0.0155	1.56	1.47
02/04/87	2.02	11.69	17.31	15.29	0.0155	1.56	1.32
08/10/87	4.54	18.48	24.57	20.03	0.0155	1.56	1.55
09/16/87	5.37	25.93	20.69	15.33	0.0153	1.54	-0.91
02/02/87	3.38	18.75	18.04	14.66	0.0152	1.53	0.86
01/15/87	1.78	9.78	18.17	16.40	0.0151	1.52	1.09
05/08/87	4.61	22.39	20.59	15.98	0.0151	1.52	-0.45
02/12/87	3.99	20.25	19.71	15.72	0.0150	1.52	-0.69
05/21/87	3.03	16.95	17.86	14.83	0.0146	1.47	0.70
04/28/87	5.27	26.39	19.99	14.71	0.0145	1.46	0.24
08/06/87	3.13	14.63	21.35	18.23	0.0144	1.45	1.14
10/12/87	4.93	19.44	25.37	20.44	0.0140	1.41	-0.53
04/01/87	3.56	19.40	18.35	14.79	0.0139	1.40	0.23
06/02/87	5.22	25.00	20.86	15.65	0.0139	1.40	-0.47
05/20/87	4.35	21.69	20.07	15.72	0.0139	1.40	-0.50
03/20/87	14.10	49.25	28.63	14.53	0.0138	1.39	1.39
08/25/87	3.51	17.44	20.14	16.63	0.0136	1.37	1.03
09/29/87	4.61	20.78	22.19	17.58	0.0135	1.36	-0.47
04/29/87	4.61	24.62	18.72	14.11	0.0135	1.36	0.73
04/08/87	4.73	23.29	20.30	15.57	0.0133	1.33	0.19
01/12/87	1.63	9.38	17.37	15.74	0.0132	1.33	0.61
08/28/87	3.20	14.71	21.75	18.55	0.0132	1.33	-1.31
04/20/87	6.47	30.00	21.57	15.10	0.0132	1.32	-0.29
05/13/87	3.19	16.67	19.16	15.97	0.0130	1.31	0.23
10/09/87	5.05	22.22	22.74	17.69	0.0130	1.31	-0.99
01/21/87	3.53	16.88	20.90	17.37	0.0130	1.31	-0.45
02/26/87	3.92	19.40	20.21	16.28	0.0129	1.30	-0.37
02/05/87	2.53	13.40	18.89	16.36	0.0127	1.28	0.54
07/07/87	3.49	18.18	19.18	15.70	0.0127	1.28	0.81
03/18/87	2.02	10.39	19.43	17.42	0.0127	1.28	0.11
01/20/87	3.11	16.09	19.35	16.24	0.0125	1.26	-0.11
07/29/87	3.57	16.28	21.92	18.35	0.0125	1.26	1.06
03/23/87	4.76	20.45	23.27	18.51	0.0123	1.23	1.00

Exhibit 3A

DATE	i1	i2	i7	i8	y1	y2	y3
03/09/87	2.12	10.77	19.65	17.53	0.0123	1.23	-0.81
01/09/87	1.30	7.69	16.84	15.54	0.0120	1.21	0.56
01/07/87	1.57	10.17	15.45	13.88	0.0119	1.20	1.01
08/24/87	3.68	14.67	25.10	21.42	0.0119	1.20	-0.77
01/14/87	1.87	10.67	17.51	15.64	0.0119	1.19	1.03
08/04/87	4.20	18.42	22.82	18.62	0.0118	1.19	-0.42
05/04/87	6.05	27.87	21.69	15.65	0.0118	1.19	0.46
08/03/87	5.05	23.08	21.90	16.84	0.0116	1.17	-0.34
06/12/87	2.86	15.15	18.85	15.99	0.0114	1.15	0.97
10/07/87	5.90	23.91	24.69	18.79	0.0113	1.14	-0.22
07/23/87	3.67	17.39	21.08	17.41	0.0113	1.14	-0.21
02/25/87	2.17	11.94	18.20	16.02	0.0113	1.13	0.40
03/16/87	3.34	16.07	20.76	17.42	0.0113	1.13	-0.57
07/02/87	2.26	12.50	18.08	15.82	0.0112	1.12	0.89
09/10/87	5.56	23.53	23.64	18.08	0.0111	1.12	1.02
05/22/87	4.40	22.22	19.78	15.38	0.0111	1.12	0.71
08/05/87	3.37	15.29	22.06	18.68	0.0110	1.11	0.70
05/01/87	3.44	20.00	17.18	13.74	0.0110	1.11	-0.11
01/16/87	6.41	28.57	22.44	16.03	0.0109	1.10	0.30
03/11/87	3.48	17.11	20.33	16.85	0.0109	1.10	-0.19
05/29/87	4.23	20.97	20.20	15.96	0.0109	1.09	-0.23
05/12/87	3.54	16.92	20.93	17.39	0.0107	1.08	0.59
07/20/87	1.76	8.82	20.23	18.44	0.0106	1.07	-1.02
09/14/87	5.18	21.92	23.64	18.46	0.0106	1.06	0.34
02/11/87	2.61	15.00	17.40	14.79	0.0106	1.06	0.90
08/12/87	3.82	15.38	24.81	20.99	0.0105	1.05	-0.28
01/30/87	3.37	17.46	19.28	15.91	0.0105	1.05	-0.06
06/22/87	5.33	21.84	24.41	19.08	0.0105	1.05	0.88
07/14/87	1.87	9.59	19.53	17.66	0.0105	1.05	0.99
08/27/87	3.06	13.89	22.00	18.95	0.0103	1.04	-0.95
08/14/87	3.57	16.47	21.67	18.10	0.0103	1.04	-0.20
03/10/87	0.86	4.48	19.16	18.31	0.0103	1.04	0.89
08/19/87	3.32	15.79	21.01	17.69	0.0102	1.02	0.18
02/09/87	1.74	8.93	19.54	17.79	0.0100	1.00	-0.67
09/09/87	3.64	16.90	21.53	17.89	0.0099	1.00	0.11
01/26/87	2.88	14.55	19.81	16.93	0.0099	0.99	-0.19
01/28/87	4.09	21.62	18.90	14.81	0.0098	0.98	0.60
07/15/87	4.20	19.77	21.26	17.05	0.0097	0.97	-0.08
03/31/87	4.07	20.90	19.50	15.42	0.0096	0.97	0.86
04/10/87	4.13	20.90	19.76	15.63	0.0095	0.96	-1.60
08/31/87	5.73	23.17	24.73	19.00	0.0094	0.95	0.84
08/13/87	3.92	16.04	24.41	20.50	0.0094	0.94	0.68
07/30/87	2.64	12.50	21.15	18.51	0.0094	0.94	0.76
07/13/87	5.90	25.71	22.95	17.05	0.0093	0.94	-0.24
06/01/87	5.02	23.81	21.10	16.08	0.0093	0.93	-0.09
05/07/87	3.72	20.51	18.12	14.41	0.0092	0.92	-0.25
03/05/87	1.46	8.11	18.01	16.55	0.0090	0.91	0.66
06/18/87	1.78	9.38	18.98	17.20	0.0090	0.91	0.29
01/08/87	2.31	13.85	16.71	14.40	0.0090	0.91	0.76
09/24/87	3.39	17.46	19.42	16.03	0.0090	0.90	-0.47
06/23/87	2.32	12.16	19.05	16.74	0.0090	0.90	-0.40
03/02/87	4.47	21.88	20.42	15.95	0.0089	0.89	-0.42
05/27/87	3.50	18.75	18.67	15.17	0.0088	0.88	-0.13

Exhibit 3A

DATE	i1	i2	i7	i8	y1	y2	y3
05/06/87	2.03	11.94	17.04	15.01	0.0088	0.88	0.04
06/16/87	3.80	18.46	20.60	16.79	0.0086	0.87	0.53
08/26/87	3.06	15.00	20.39	17.33	0.0086	0.86	-0.65
02/19/87	2.75	13.70	20.11	17.36	0.0084	0.85	0.05
09/23/87	6.81	27.78	24.51	17.70	0.0084	0.84	0.54
06/24/87	2.28	11.86	19.18	16.91	0.0084	0.84	-0.51
06/26/87	4.32	22.03	19.60	15.28	0.0084	0.84	-0.58
09/17/87	5.97	25.00	23.89	17.92	0.0084	0.84	0.02
06/25/87	2.88	15.38	18.73	15.85	0.0083	0.84	0.69
04/02/87	3.55	19.70	18.03	14.48	0.0083	0.83	0.43
07/06/87	4.52	20.29	22.26	17.74	0.0082	0.83	-0.23
03/25/87	2.63	13.64	19.26	16.64	0.0082	0.82	-0.42
06/15/87	4.78	20.55	23.26	18.48	0.0081	0.81	0.50
07/08/87	2.65	14.47	18.31	15.66	0.0080	0.81	0.29
06/04/87	2.49	13.73	18.18	15.68	0.0079	0.80	0.55
06/05/87	3.87	19.23	20.14	16.27	0.0078	0.79	-0.56
03/26/87	2.04	11.11	18.37	16.33	0.0078	0.78	0.18
03/12/87	1.43	8.33	17.19	15.76	0.0077	0.78	0.31
07/16/87	2.13	11.54	18.49	16.36	0.0077	0.78	0.73
09/25/87	3.99	19.30	20.65	16.67	0.0077	0.77	0.13
08/17/87	5.72	22.09	25.89	20.17	0.0076	0.77	0.04
03/19/87	3.61	17.14	21.07	17.46	0.0075	0.75	0.44
10/05/87	4.38	17.95	24.42	20.04	0.0074	0.74	0.01
09/30/87	7.65	30.11	25.40	17.75	0.0073	0.73	0.04
05/14/87	2.94	14.52	20.23	17.30	0.0073	0.73	0.09
01/06/87	2.38	14.06	16.90	14.53	0.0073	0.73	0.23
02/03/87	1.77	10.29	17.16	15.40	0.0072	0.72	-0.17
08/07/87	2.12	11.39	18.57	16.46	0.0072	0.72	0.28
07/17/87	6.90	28.16	24.52	17.62	0.0070	0.71	0.60
07/09/87	2.30	12.33	18.68	16.38	0.0069	0.69	-0.25
02/06/87	1.36	7.69	17.65	16.30	0.0068	0.68	-0.40
07/27/87	2.30	13.73	16.78	14.47	0.0067	0.68	0.44
09/18/87	10.37	38.24	27.11	16.75	0.0067	0.67	-0.02
02/24/87	1.98	10.53	18.84	16.85	0.0066	0.66	0.18
07/28/87	2.90	14.08	20.57	17.67	0.0066	0.66	0.54
03/13/87	2.65	13.56	19.55	16.90	0.0066	0.66	-0.46
03/06/87	2.20	11.59	19.00	16.80	0.0066	0.66	0.05
02/27/87	4.55	21.67	21.01	16.46	0.0063	0.63	0.44
08/21/87	7.91	28.57	27.69	19.78	0.0061	0.62	0.32
07/22/87	2.29	11.27	20.32	18.03	0.0060	0.60	-0.03
04/06/87	2.30	11.27	20.44	18.13	0.0059	0.59	0.51
02/20/87	3.41	16.44	20.76	17.35	0.0059	0.59	-0.03
03/24/87	2.63	12.99	20.27	17.64	0.0059	0.59	0.16
06/09/87	4.57	23.08	19.79	15.23	0.0056	0.56	0.19
06/17/87	1.89	10.61	17.87	15.97	0.0055	0.56	0.02
10/02/87	2.64	13.51	19.57	16.92	0.0052	0.52	0.22
06/11/87	3.96	18.97	20.88	16.92	0.0049	0.49	0.42
07/24/87	1.89	9.52	19.89	17.99	0.0048	0.48	0.47
07/01/87	2.87	15.79	18.15	15.29	0.0048	0.48	-0.35
01/13/87	1.46	8.62	16.97	15.51	0.0048	0.48	-0.13
07/10/87	1.45	8.93	16.27	14.82	0.0046	0.47	0.28
06/19/87	18.94	55.63	34.06	15.11	0.0046	0.46	0.42
06/29/87	3.16	16.07	19.65	16.49	0.0046	0.46	0.24
03/03/87	2.35	13.21	17.76	15.42	0.0045	0.45	0.40
07/31/87	2.20	10.67	20.62	18.42	0.0040	0.40	0.19

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DATA LISTED FROM HIGHEST TO LOWEST PROGRAM INTENSITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
06/19/87	18.94	55.63	34.06	15.11	0.0046	0.46	0.42
03/20/87	14.10	49.25	28.63	14.53	0.0138	1.39	1.39
09/18/87	10.37	38.24	27.11	16.75	0.0067	0.67	-0.02
08/21/87	7.91	28.57	27.69	19.78	0.0061	0.62	0.32
10/14/87	7.71	31.37	24.59	16.88	0.0314	3.19	-2.95
10/16/87	7.68	29.21	26.29	18.61	0.0598	6.16	-5.08
09/30/87	7.65	30.11	25.40	17.75	0.0073	0.73	0.04
10/19/87	7.11	28.10	25.30	18.19	0.2280	25.61	-20.46
07/17/87	6.90	28.16	24.52	17.62	0.0070	0.71	0.60
09/23/87	6.81	27.78	24.51	17.70	0.0084	0.84	0.54
10/06/87	6.80	25.26	26.90	20.10	0.0275	2.79	-2.70
01/23/87	6.78	28.47	23.81	17.03	0.0456	4.67	-1.39
04/14/87	6.75	29.51	22.89	16.14	0.0355	3.62	-2.27
04/27/87	6.74	28.85	23.35	16.61	0.0294	2.98	0.11
09/01/87	6.72	27.08	24.81	18.09	0.0286	2.90	-1.94
09/22/87	6.68	28.00	23.87	17.18	0.0345	3.51	2.89
09/28/87	6.65	27.78	23.92	17.28	0.0160	1.61	0.95
05/11/87	6.63	27.84	23.81	17.18	0.0242	2.45	-0.61
08/11/87	6.60	24.50	26.93	20.33	0.0161	1.62	1.62
04/20/87	6.47	30.00	21.57	15.10	0.0132	1.32	-0.29
10/15/87	6.46	27.87	23.18	16.72	0.0236	2.39	-2.34
01/16/87	6.41	28.57	22.44	16.03	0.0109	1.10	0.30
04/21/87	6.26	28.92	21.64	15.38	0.0353	3.59	2.44
09/15/87	6.24	24.29	25.70	19.46	0.0169	1.70	-1.65
02/13/87	6.24	28.75	21.69	15.46	0.0212	2.14	1.48
05/04/87	6.05	27.87	21.69	15.65	0.0118	1.19	0.46
09/17/87	5.97	25.00	23.89	17.92	0.0084	0.84	0.02
10/07/87	5.90	23.91	24.69	18.79	0.0113	1.14	-0.22
07/13/87	5.90	25.71	22.95	17.05	0.0093	0.94	-0.24
04/24/87	5.90	26.92	21.91	16.01	0.0199	2.01	-1.85
05/15/87	5.78	25.61	22.55	16.78	0.0245	2.48	-2.31
09/02/87	5.75	23.47	24.51	18.76	0.0179	1.80	-0.53
08/31/87	5.73	23.17	24.73	19.00	0.0094	0.95	0.84
08/17/87	5.72	22.09	25.89	20.17	0.0076	0.77	0.04
05/19/87	5.67	24.69	22.96	17.29	0.0302	3.07	-2.45
09/10/87	5.56	23.53	23.64	18.08	0.0111	1.12	1.02
10/08/87	5.54	26.19	21.14	15.60	0.0232	2.35	-1.37
09/16/87	5.37	25.93	20.69	15.33	0.0153	1.54	-0.91
06/22/87	5.33	21.84	24.41	19.08	0.0105	1.05	0.88
04/15/87	5.30	26.25	20.18	14.88	0.0211	2.13	1.89
09/21/87	5.29	22.22	23.81	18.52	0.0240	2.43	-1.37
04/28/87	5.27	26.39	19.99	14.71	0.0145	1.46	0.24
06/02/87	5.22	25.00	20.86	15.65	0.0139	1.40	-0.47
09/14/87	5.18	21.92	23.64	18.46	0.0106	1.06	0.34
06/30/87	5.14	21.79	23.56	18.43	0.0163	1.64	-1.27
06/10/87	5.07	24.69	20.52	15.45	0.0172	1.74	0.06
10/09/87	5.05	22.22	22.74	17.69	0.0130	1.31	-0.99
08/03/87	5.05	23.08	21.90	16.84	0.0116	1.17	-0.34

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DATA LISTED FROM HIGHEST TO LOWEST PROGRAM INTENSITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
06/01/87	5.02	23.81	21.10	16.08	0.0093	0.93	-0.09
10/12/87	4.93	19.44	25.37	20.44	0.0140	1.41	-0.53
04/23/87	4.89	24.64	19.84	14.95	0.0168	1.70	-0.13
05/28/87	4.88	22.73	21.46	16.58	0.0179	1.80	0.70
05/18/87	4.85	22.08	21.96	17.11	0.0171	1.72	-0.27
04/22/87	4.84	24.32	19.90	15.06	0.0223	2.25	-2.01
08/18/87	4.79	19.39	24.70	19.91	0.0230	2.33	-1.45
06/15/87	4.78	20.55	23.26	18.48	0.0081	0.81	0.50
03/23/87	4.76	20.45	23.27	18.51	0.0123	1.23	1.00
04/08/87	4.73	23.29	20.30	15.57	0.0133	1.33	0.19
04/13/87	4.70	22.08	21.27	16.57	0.0266	2.70	-2.34
04/03/87	4.69	24.10	19.45	14.76	0.0302	3.07	2.31
05/05/87	4.68	23.38	20.02	15.34	0.0207	2.09	2.07
09/04/87	4.65	18.46	25.17	20.53	0.0172	1.74	-1.10
10/13/87	4.63	22.22	20.82	16.19	0.0165	1.66	1.66
09/29/87	4.61	20.78	22.19	17.58	0.0135	1.36	-0.47
05/08/87	4.61	22.39	20.59	15.98	0.0151	1.52	-0.45
04/29/87	4.61	24.62	18.72	14.11	0.0135	1.36	0.73
08/20/87	4.58	19.78	23.14	18.57	0.0158	1.59	1.52
06/09/87	4.57	23.08	19.79	15.23	0.0056	0.56	0.19
03/30/87	4.56	19.79	23.03	18.47	0.0323	3.28	-2.34
02/27/87	4.55	21.67	21.01	16.46	0.0063	0.63	0.44
08/10/87	4.54	18.48	24.57	20.03	0.0155	1.56	1.55
09/08/87	4.53	20.95	21.61	17.09	0.0260	2.64	-0.99
07/06/87	4.52	20.29	22.26	17.74	0.0082	0.83	-0.23
03/02/87	4.47	21.88	20.42	15.95	0.0089	0.89	-0.42
05/22/87	4.40	22.22	19.78	15.38	0.0111	1.12	0.71
10/05/87	4.38	17.95	24.42	20.04	0.0074	0.74	0.01
05/20/87	4.35	21.69	20.07	15.72	0.0139	1.40	-0.50
06/26/87	4.32	22.03	19.60	15.28	0.0084	0.84	-0.58
01/22/87	4.24	20.51	20.67	16.43	0.0249	2.52	2.27
09/03/87	4.24	17.95	23.61	19.37	0.0215	2.17	-0.46
05/29/87	4.23	20.97	20.20	15.96	0.0109	1.09	-0.23
04/16/87	4.22	21.92	19.25	15.03	0.0179	1.80	0.87
08/04/87	4.20	18.42	22.82	18.62	0.0118	1.19	-0.42
07/15/87	4.20	19.77	21.26	17.05	0.0097	0.97	-0.08
04/10/87	4.13	20.90	19.76	15.63	0.0095	0.96	-1.60
01/28/87	4.09	21.62	18.90	14.81	0.0098	0.98	0.60
03/31/87	4.07	20.90	19.50	15.42	0.0096	0.97	0.86
02/12/87	3.99	20.25	19.71	15.72	0.0150	1.52	-0.69
09/25/87	3.99	19.30	20.65	16.67	0.0077	0.77	0.13
06/11/87	3.96	18.97	20.88	16.92	0.0049	0.49	0.42
06/03/87	3.96	20.00	19.79	15.83	0.0169	1.70	1.74
02/26/87	3.92	19.40	20.21	16.28	0.0129	1.30	-0.37
08/13/87	3.92	16.04	24.41	20.50	0.0094	0.94	0.68
02/18/87	3.90	17.71	22.00	18.10	0.0161	1.62	-0.02
10/01/87	3.88	18.07	21.48	17.60	0.0169	1.70	1.71
06/05/87	3.87	19.23	20.14	16.27	0.0078	0.79	-0.56
08/12/87	3.82	15.38	24.81	20.99	0.0105	1.05	-0.28

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DATA LISTED FROM HIGHEST TO LOWEST PROGRAM INTENSITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
02/23/87	3.81	18.84	20.23	16.42	0.0217	2.19	-1.09
06/16/87	3.80	18.46	20.60	16.79	0.0086	0.87	0.53
04/07/87	3.76	17.72	21.19	17.44	0.0232	2.34	-1.74
07/21/87	3.75	16.87	22.24	18.49	0.0158	1.59	-0.91
05/07/87	3.72	20.51	18.12	14.41	0.0092	0.92	-0.25
08/24/87	3.68	14.67	25.10	21.42	0.0119	1.20	-0.77
06/08/87	3.67	18.87	19.43	15.76	0.0184	1.86	1.11
07/23/87	3.67	17.39	21.08	17.41	0.0113	1.14	-0.21
01/27/87	3.64	19.72	18.46	14.82	0.0173	1.74	1.54
09/09/87	3.64	16.90	21.53	17.89	0.0099	1.00	0.11
03/19/87	3.61	17.14	21.07	17.46	0.0075	0.75	0.44
08/14/87	3.57	16.47	21.67	18.10	0.0103	1.04	-0.20
07/29/87	3.57	16.28	21.92	18.35	0.0125	1.26	1.06
04/01/87	3.56	19.40	18.35	14.79	0.0139	1.40	0.23
04/02/87	3.55	19.70	18.03	14.48	0.0083	0.83	0.43
04/30/87	3.55	19.70	18.02	14.47	0.0192	1.94	1.33
05/12/87	3.54	16.92	20.93	17.39	0.0107	1.08	0.59
01/21/87	3.53	16.88	20.90	17.37	0.0130	1.31	-0.45
08/25/87	3.51	17.44	20.14	16.63	0.0136	1.37	1.03
05/27/87	3.50	18.75	18.67	15.17	0.0088	0.88	-0.13
07/07/87	3.49	18.18	19.18	15.70	0.0127	1.28	0.81
03/11/87	3.48	17.11	20.33	16.85	0.0109	1.10	-0.19
02/17/87	3.46	15.48	22.36	18.90	0.0204	2.06	2.07
05/01/87	3.44	20.00	17.18	13.74	0.0110	1.11	-0.11
02/20/87	3.41	16.44	20.76	17.35	0.0059	0.59	-0.03
09/24/87	3.39	17.46	19.42	16.03	0.0090	0.90	-0.47
02/02/87	3.38	18.75	18.04	14.66	0.0152	1.53	0.86
08/05/87	3.37	15.29	22.06	18.68	0.0110	1.11	0.70
01/30/87	3.37	17.46	19.28	15.91	0.0105	1.05	-0.06
03/16/87	3.34	16.07	20.76	17.42	0.0113	1.13	-0.57
08/19/87	3.32	15.79	21.01	17.69	0.0102	1.02	0.18
05/26/87	3.28	16.67	19.67	16.39	0.0243	2.46	2.46
08/28/87	3.20	14.71	21.75	18.55	0.0132	1.33	-1.31
05/13/87	3.19	16.67	19.16	15.97	0.0130	1.31	0.23
06/29/87	3.16	16.07	19.65	16.49	0.0046	0.46	0.24
08/06/87	3.13	14.63	21.35	18.23	0.0144	1.45	1.14
01/20/87	3.11	16.09	19.35	16.24	0.0125	1.26	-0.11
08/26/87	3.06	15.00	20.39	17.33	0.0086	0.86	-0.65
08/27/87	3.06	13.89	22.00	18.95	0.0103	1.04	-0.95
05/21/87	3.03	16.95	17.86	14.83	0.0146	1.47	0.70
01/05/87	3.02	18.03	16.77	13.74	0.0245	2.48	2.33
03/27/87	2.98	15.71	18.98	16.00	0.0179	1.80	-1.60
05/14/87	2.94	14.52	20.23	17.30	0.0073	0.73	0.09
07/28/87	2.90	14.08	20.57	17.67	0.0066	0.66	0.54
06/25/87	2.88	15.38	18.73	15.85	0.0083	0.84	0.69
01/26/87	2.88	14.55	19.81	16.93	0.0099	0.99	-0.19
07/01/87	2.87	15.79	18.15	15.29	0.0048	0.48	-0.35
06/12/87	2.86	15.15	18.85	15.99	0.0114	1.15	0.97
09/11/87	2.81	13.33	21.07	18.26	0.0166	1.68	1.53

Exhibit 3B Page 4

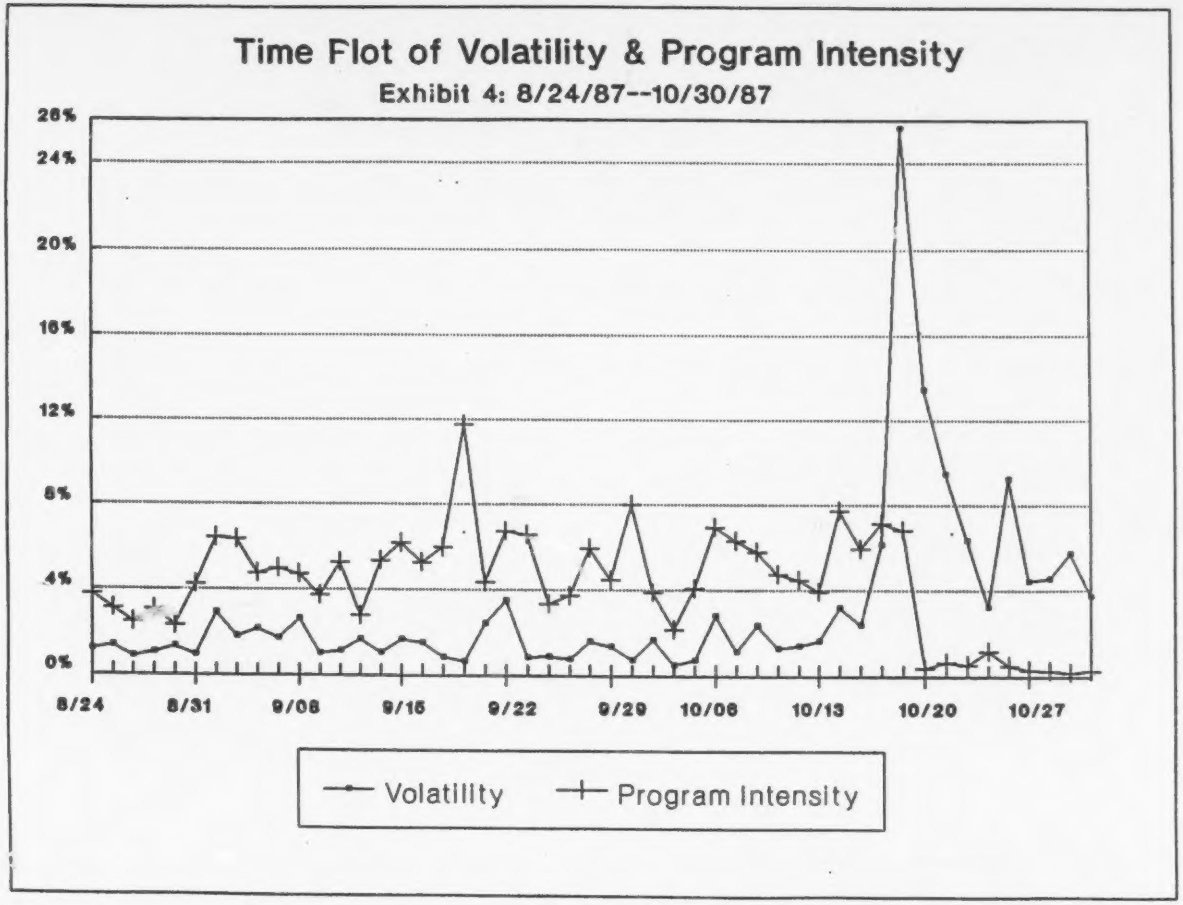
DATA LISTED FROM HIGHEST TO LOWEST PROGRAM INTENSITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
01/19/87	2.76	14.29	19.35	16.58	0.0200	2.02	1.15
02/19/87	2.75	13.70	20.11	17.36	0.0084	0.85	0.05
01/29/87	2.68	15.28	17.54	14.86	0.0157	1.58	-0.42
02/10/87	2.67	14.29	18.72	16.04	0.0169	1.70	-1.11
03/13/87	2.65	13.56	19.55	16.90	0.0066	0.66	-0.46
07/08/87	2.65	14.47	18.31	15.66	0.0080	0.81	0.29
07/30/87	2.64	12.50	21.15	18.51	0.0094	0.94	0.76
10/02/87	2.64	13.51	19.57	16.92	0.0052	0.52	0.22
03/24/87	2.63	12.99	20.27	17.64	0.0059	0.59	0.16
03/25/87	2.63	13.64	19.26	16.64	0.0082	0.82	-0.42
02/11/87	2.61	15.00	17.40	14.79	0.0106	1.06	0.90
02/05/87	2.53	13.40	18.89	16.36	0.0127	1.28	0.54
06/04/87	2.49	13.73	18.18	15.68	0.0079	0.80	0.55
01/06/87	2.38	14.06	16.90	14.53	0.0073	0.73	0.23
03/03/87	2.35	13.21	17.76	15.42	0.0045	0.45	0.40
06/23/87	2.32	12.16	19.05	16.74	0.0090	0.90	-0.40
01/08/87	2.31	13.85	16.71	14.40	0.0090	0.91	0.76
07/09/87	2.30	12.33	18.68	16.38	0.0069	0.69	-0.25
04/06/87	2.30	11.27	20.44	18.13	0.0059	0.59	0.51
07/27/87	2.30	13.73	16.78	14.47	0.0067	0.68	0.44
07/22/87	2.29	11.27	20.32	18.03	0.0060	0.60	-0.03
06/24/87	2.28	11.86	19.18	16.91	0.0084	0.84	-0.51
07/02/87	2.26	12.50	18.08	15.82	0.0112	1.12	0.89
03/17/87	2.26	12.90	17.48	15.23	0.0155	1.56	1.47
03/06/87	2.20	11.59	19.00	16.80	0.0066	0.66	0.05
07/31/87	2.20	10.67	20.62	18.42	0.0040	0.40	0.19
01/02/87	2.18	14.29	15.24	13.06	0.0175	1.77	1.77
02/25/87	2.17	11.94	18.20	16.02	0.0113	1.13	0.40
07/16/87	2.13	11.54	18.49	16.36	0.0077	0.78	0.73
03/09/87	2.12	10.77	19.65	17.53	0.0123	1.23	-0.81
08/07/87	2.12	11.39	18.57	16.46	0.0072	0.72	0.28
03/26/87	2.04	11.11	18.37	16.33	0.0078	0.78	0.18
05/06/87	2.03	11.94	17.04	15.01	0.0088	0.88	0.04
02/04/87	2.02	11.69	17.31	15.29	0.0155	1.56	1.32
03/18/87	2.02	10.39	19.43	17.42	0.0127	1.28	0.11
02/24/87	1.98	10.53	18.84	16.85	0.0066	0.66	0.18
06/17/87	1.89	10.61	17.87	15.97	0.0055	0.56	0.02
07/24/87	1.89	9.52	19.89	17.99	0.0048	0.48	0.47
07/14/87	1.87	9.59	19.53	17.66	0.0105	1.05	0.99
01/14/87	1.87	10.67	17.51	15.64	0.0119	1.19	1.03
07/20/87	1.78	8.82	20.23	18.44	0.0106	1.07	-1.02
06/18/87	1.78	9.38	18.98	17.20	0.0090	0.91	0.29
01/15/87	1.78	9.78	18.17	16.40	0.0151	1.52	1.09
02/03/87	1.77	10.29	17.16	15.40	0.0072	0.72	-0.17
03/04/87	1.76	10.14	17.39	15.63	0.0157	1.58	1.58
02/09/87	1.74	8.93	19.54	17.79	0.0100	1.00	-0.67
01/12/87	1.63	9.38	17.37	15.74	0.0132	1.33	0.61
01/07/87	1.57	10.17	15.45	13.88	0.0119	1.20	1.01
01/13/87	1.46	8.62	16.97	15.51	0.0048	0.48	-0.13

Exhibit 3B Page 5

DATA LISTED FROM HIGHEST TO LOWEST PROGRAM INTENSITY DAY

DATE	i1	i2	i7	i8	y1	y2	y3
03/05/87	1.46	8.11	18.01	16.55	0.0090	0.91	0.66
07/10/87	1.45	8.93	16.27	14.82	0.0046	0.47	0.28
03/12/87	1.43	8.33	17.19	15.76	0.0077	0.78	0.31
02/06/87	1.36	7.69	17.65	16.30	0.0068	0.68	-0.40
01/09/87	1.30	7.69	16.84	15.54	0.0120	1.21	0.56
10/23/87	1.22	6.00	20.36	19.14	0.0319	3.24	-0.01
03/10/87	0.86	4.48	19.16	18.31	0.0103	1.04	0.89
10/21/87	0.78	3.65	21.36	20.58	0.0905	9.48	9.10
10/22/87	0.64	3.11	20.53	19.89	0.0614	6.33	-3.92
10/20/87	0.58	2.76	21.03	20.45	0.1263	13.47	5.23
10/26/87	0.49	2.22	21.86	21.37	0.0881	9.21	-8.28
10/29/87	0.39	2.02	19.18	18.79	0.0558	5.74	4.93
10/27/87	0.38	1.63	23.64	23.25	0.0436	4.45	2.42
10/28/87	0.36	1.82	19.69	19.33	0.0447	4.57	0.04
10/30/87	0.33	1.74	18.95	18.62	0.0368	3.75	2.87

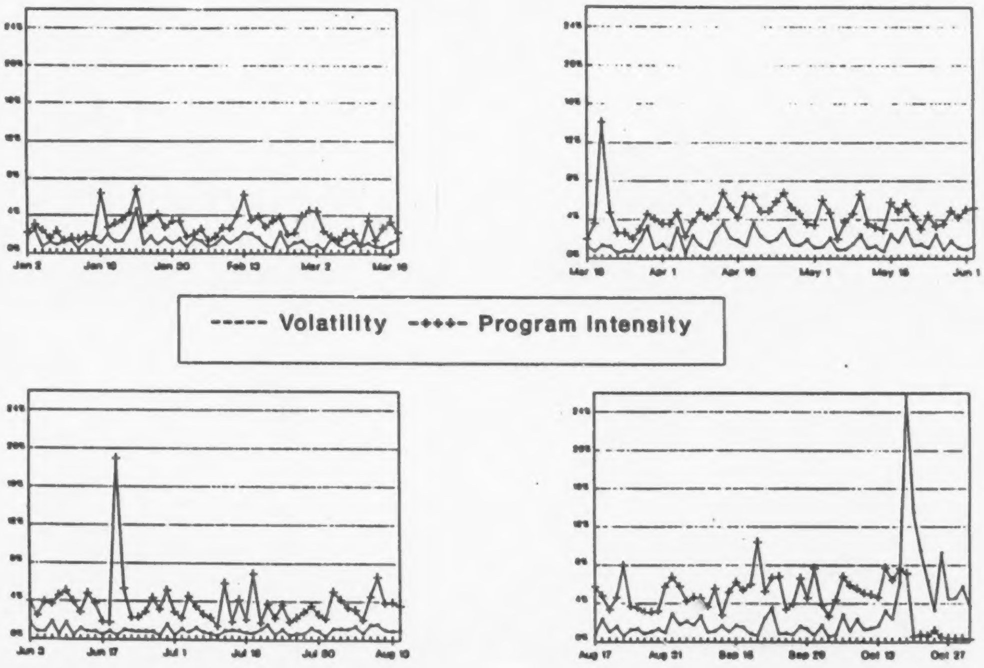


Time Flot of Volatility & Program Intensity

Exhibit 4: 8/24/87--10/30/87

Time Plot of Volatility & Program Intensity

Exhibit 5A: 01/02/87--10/30/87



Plot of Volatility vs Program Intensity

Exhibit 5B: 01/02/87--10/30/87

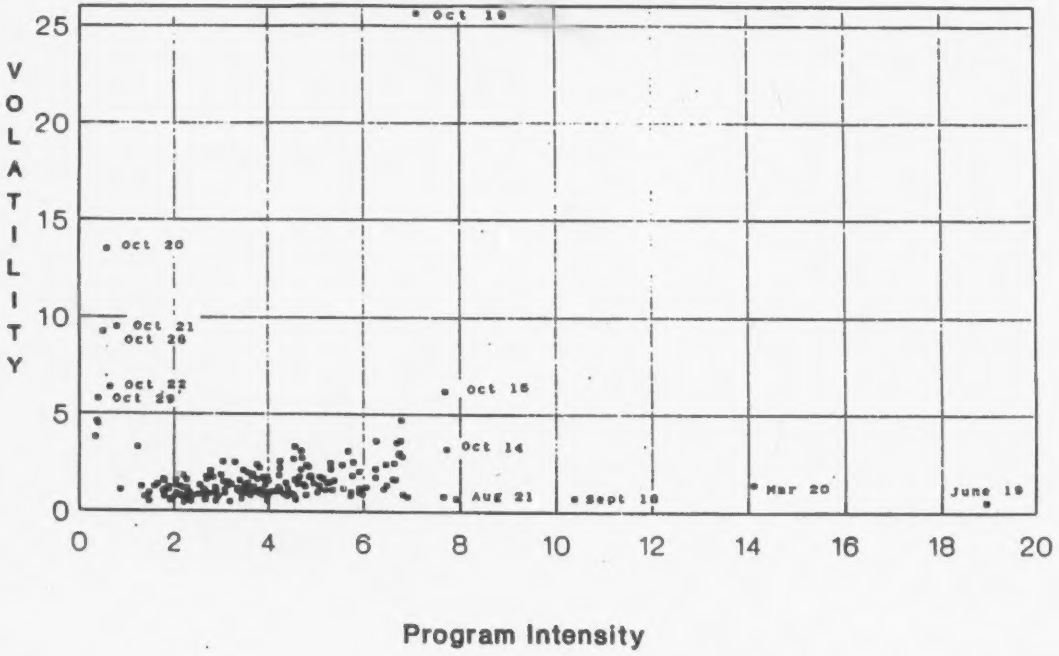


Exhibit 6
SUMMARY STATISTICS

Period Covered: 1/2/87 - 10/19/87

Variable	i1	i2	i7	i8	v2	v3	v4
Maximum	18.94	55.63	34.06	21.42	25.61	2.89	20.46
Minimum	0.86	4.48	15.24	13.06	0.40	-20.46	0.01
Average	4.06	18.85	20.85	16.79	1.50	-0.02	0.92
Std. Dev.	2.05	6.85	2.73	1.57	1.88	1.82	1.57

Period Covered: 1/2/87 - 10/30/87

Variable	i1	i2	i7	i8	v2	v3	v4
Maximum	18.94	55.63	34.06	23.25	25.61	9.10	20.46
Minimum	0.33	1.63	15.24	13.06	0.40	-20.46	0.01
Average	3.91	18.17	20.84	16.93	1.72	0.04	1.05
Std. Dev.	2.13	7.45	2.69	1.71	2.22	2.06	1.78

```
                                  Exhibit 7          Page 1
                              CORRELATION MATRIX

******************************************************************
*  CORRELATION MATRIX: PROGRAM INTENSITY vs IMPLIED VOLATILITY   *
*  method: pearson correlation                                   *
*  data time period: 1/2/87--10/30/87                            *
 ******************************************************************
*
***************
*  dep = y1  *
***************
*
PEARSON CORRELATION MATRIX
                       Y1          I1          I2          I7          I8
        Y1        1.000000000
        I1        0.019173122 1.000000000
        I2       -0.028798611 0.963307194 1.000000000
        I7        0.182557233 0.772291088 0.631443247 1.000000000
        I8        0.263323916-0.031592100-0.207451115 0.610553426 1.00000000
NUMBER OF OBSERVATIONS:  210
*
***************
*  dep = y2  *
***************
*
PEARSON CORRELATION MATRIX
                       Y2          I1          I2          I7          I8
        Y2        1.000000000
        I1        0.021475678 1.000000000
        I2       -0.025750174 0.963307194 1.000000000
        I7        0.179678410 0.772291088 0.631443247 1.000000000
        I8        0.255923973-0.031592100-0.207451115 0.610553426 1.000000000
NUMBER OF OBSERVATIONS:  210
*
***************
*  dep = y3  *
***************
*
PEARSON CORRELATION MATRIX
                       Y3          I1          I2          I7          I8
        Y3        1.000000000
        I1       -0.193278026 1.000000000
        I2       -0.186352598 0.963307194 1.000000000
        I7       -0.219140646 0.772291088 0.631443247 1.000000000
        I8       -0.103829875-0.031592100-0.207451115 0.610553426 1.000000000
NUMBER OF OBSERVATIONS:  210
```

Exhibit 7 Page 2
CORRELATION MATRIX

```
*
***************
*  dep = y4   *
***************
*
PEARSON CORRELATION MATRIX
                       Y4          I1          I2          I7          I8
        Y4       1.000000000
        I1       0.044507981 1.000000000
        I2      -0.000236121 0.963307194 1.000000000
        I7       0.175136501 0.772291088 0.631443247 1.000000000
        I8       0.220064113-0.031592100-0.207451115 0.610553426 1.000000000
NUMBER OF OBSERVATIONS:  210
```

Exhibit 8 Page 2
REGRESSION ANALYSIS

```
*
***************
*  dep = y2  *
***************
*
DEP VAR:       Y2      N:  210     MULTIPLE R:  .021     SQUARED MULTIPLE R:  .
ADJUSTED SQUARED MULTIPLE R:  .000      STANDARD ERROR OF ESTIMATE:   2.226640
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TA
CONSTANT       1.631577870  0.321331042  0.000000000 1.0000000  5.07756  0.00
      I1       0.022343997  0.072124388  0.021475678 1.0000000  0.30980  0.757
                                ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE      F-RATIO        P
 REGRESSION    0.475836422      1  0.475836422 0.095974852 0.757024657
   RESIDUAL    .103125E+04    208  4.957928151
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210     MULTIPLE R:  .026     SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .000      STANDARD ERROR OF ESTIMATE:   2.2264156
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAI
CONSTANT       1.858108081  0.404727904  0.000000000 1.0000000  4.59101  0.000
      I2      -0.007657529  0.020612600 -0.025750174 1.0000000 -0.37150  0.710
                                ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE      F-RATIO        P
 REGRESSION    0.684107345      1  0.684107345 0.138010377 0.710645171
   RESIDUAL    .103104E+04    208  4.956926849
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210     MULTIPLE R:  .026     SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .000      STANDARD ERROR OF ESTIMATE:   2.226415
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAI
CONSTANT       1.858108081  0.404727904  0.000000000 1.0000000  4.59101  0.000
      I2      -0.007657529  0.020612600 -0.025750174 1.0000000 -0.37150  0.710
                                ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE      F-RATIO        P
 REGRESSION    0.684107345      1  0.684107345 0.138010377 0.710645171
   RESIDUAL    .103104E+04    208  4.956926849
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210     MULTIPLE R:  .180     SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .028      STANDARD ERROR OF ESTIMATE:   2.1909081
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAI
CONSTANT      -1.368551930  1.181802211  0.000000000 1.0000000 -1.15802  0.248
      I7       0.148128363  0.056232132  0.179678410 1.0000000  2.63423  0.0090
                                ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE      F-RATIO        P
 REGRESSION    .333085E+02      1  .333085E+02 6.939167184 0.009066985
   RESIDUAL    .998416E+03    208  4.800078578
```

```
                           Exhibit 8                  Page 2
                      REGRESSION ANALYSIS

*
***************
*  dep = y2  *
***************
*
DEP VAR:       Y2      N:  210    MULTIPLE R:  .021    SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .000     STANDARD ERROR OF ESTIMATE:  2.2266405
  VARIABLE     COEFFICIENT     STD ERROR     STD COEF TOLERANCE     T    P(2 TA
CONSTANT       1.631577870  0.321331042  0.000000000 1.0000000  5.07756  0.000
      I1       0.022343997  0.072124388  0.021475678 1.0000000  0.30980  0.757
                              ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE     F-RATIO      P
 REGRESSION    0.475836422      1  0.475836422 0.095974852 0.757024657
   RESIDUAL    .103125E+04    208  4.957928151
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210    MULTIPLE R:  .026    SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .000     STANDARD ERROR OF ESTIMATE:  2.2264156
  VARIABLE     COEFFICIENT     STD ERROR     STD COEF TOLERANCE     T    P(2 TAI
CONSTANT       1.858108081  0.404727904  0.000000000 1.0000000  4.59101  0.000
      I2      -0.007657529  0.020612600 -0.025750174 1.0000000 -0.37150  0.710
                              ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE     F-RATIO      P
 REGRESSION    0.684107345      1  0.684107345 0.138010377 0.710645171
   RESIDUAL    .103104E+04    208  4.956926849
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210    MULTIPLE R:  .026    SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .000     STANDARD ERROR OF ESTIMATE:  2.2264156
  VARIABLE     COEFFICIENT     STD ERROR     STD COEF TOLERANCE     T    P(2 TAI
CONSTANT       1.858108081  0.404727904  0.000000000 1.0000000  4.59101  0.000
      I2      -0.007657529  0.020612600 -0.025750174 1.0000000 -0.37150  0.710
                              ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE     F-RATIO      P
 REGRESSION    0.684107345      1  0.684107345 0.138010377 0.710645171
   RESIDUAL    .103104E+04    208  4.956926849
-------------------------------------------------------------------------------
*
DEP VAR:       Y2      N:  210    MULTIPLE R:  .180    SQUARED MULTIPLE R:  .03
ADJUSTED SQUARED MULTIPLE R:  .028     STANDARD ERROR OF ESTIMATE:  2.19090816
  VARIABLE     COEFFICIENT     STD ERROR     STD COEF TOLERANCE     T    P(2 TAIL
CONSTANT      -1.368551930  1.181802211  0.000000000 1.0000000 -1.15802  0.248
      I7       0.148128363  0.056232132  0.179678410 1.0000000  2.63423  0.0090
                              ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE     F-RATIO      P
 REGRESSION    .333085E+02      1  .333085E+02 6.939167184 0.009066985
   RESIDUAL    .998416E+03    208  4.800078578
```

```
                          Exhibit 8               Page 3
                      REGRESSION ANALYSIS

*
DEP VAR:       Y2      N:  210    MULTIPLE R:  .256    SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .061     STANDARD ERROR OF ESTIMATE:  2.1529830
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAI
CONSTANT     -3.901297677  1.479477791  0.000000000 1.0000000 -2.63694   0.009
     I8       0.331954777  0.086941398  0.255923973 1.0000000  3.81814   0.000
                           ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO       P
 REGRESSION     .675750E+02     1  .675750E+02 .145782E+02 0.000177410
   RESIDUAL     .964150E+03   208  4.635336174
--------------------------------------------------------------------------------

*
*
***************
*  dep = y3   *
***************
*
DEP VAR:       Y3      N:  210    MULTIPLE R:  .193    SQUARED MULTIPLE R:  .03
ADJUSTED SQUARED MULTIPLE R:  .033     STANDARD ERROR OF ESTIMATE:  2.03489574
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAIL
CONSTANT      0.774201011  0.293659958  0.000000000 1.0000000  2.63639  0.0090
     I1      -0.187264553  0.065913473 -0.193278026 1.0000000 -2.84107  0.0049
                           ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO       P
 REGRESSION     .334231E+02     1  .334231E+02 8.071658302 0.004943403
   RESIDUAL     .861287E+03   208  4.140800707
--------------------------------------------------------------------------------
*
DEP VAR:       Y3      N:  210    MULTIPLE R:  .186    SQUARED MULTIPLE R:  .03
ADJUSTED SQUARED MULTIPLE R:  .030     STANDARD ERROR OF ESTIMATE:  2.03767263
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAIL
CONSTANT      0.978901383  0.370417338  0.000000000 1.0000000  2.64270  0.0088
     I2      -0.051606338  0.018865179 -0.186352598 1.0000000 -2.73553  0.0067
                           ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO       P
 REGRESSION     .310708E+02     1  .310708E+02 7.483145901 0.006765925
   RESIDUAL     .863639E+03   208  4.152109770
--------------------------------------------------------------------------------
*
DEP VAR:       Y3      N:  210    MULTIPLE R:  .219    SQUARED MULTIPLE R:  .04
ADJUSTED SQUARED MULTIPLE R:  .043     STANDARD ERROR OF ESTIMATE:  2.02359088
  VARIABLE     COEFFICIENT     STD ERROR      STD COEF TOLERANCE     T     P(2 TAIL
CONSTANT      3.548181464  1.091549256  0.000000000 1.0000000  3.25059  0.0013
     I7      -0.168238109  0.051937745 -0.219140646 1.0000000 -3.23923  0.0014
                           ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO       P
 REGRESSION     .429663E+02     1  .429663E+02 .104926E+02 0.001395270
   RESIDUAL     .851743E+03   208  4.094920050
--------------------------------------------------------------------------------
*
```

```
                                 Exhibit 8              Page 4
                               REGRESSION ANALYSIS

DEP VAR:       Y3       N:  210    MULTIPLE R:  .104    SQUARED MULTIPLE R:  .0
ADJUSTED SQUARED MULTIPLE R:  .006     STANDARD ERROR OF ESTIMATE:  2.0627932
  VARIABLE     COEFFICIENT    STD ERROR     STD COEF TOLERANCE    T    P(2 TAI
CONSTANT       2.164851585 1.417501524  0.000000000 1.0000000  1.52723  0.128
      I8      -0.125414975 0.083299367 -0.103829875 1.0000000 -1.50559  0.133
                               ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO        P
 REGRESSION     9.645545461     1  9.645545461 2.266811396 0.133688663
   RESIDUAL     .885064E+03   208  4.255116009
-------------------------------------------------------------------------------

*
*
***************
*  dep = y4  *
***************
*
DEP VAR:       Y4       N:  210    MULTIPLE R:  .045    SQUARED MULTIPLE R:  .00
ADJUSTED SQUARED MULTIPLE R:  .000     STANDARD ERROR OF ESTIMATE:  1.78367233
  VARIABLE     COEFFICIENT    STD ERROR     STD COEF TOLERANCE    T    P(2 TAIL
CONSTANT       0.905835336 0.257405395  0.000000000 1.0000000  3.51910  0.0005
      I1       0.037123358 0.057775951  0.044507981 1.0000000  0.64254  0.5212
                               ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO        P
 REGRESSION     1.313501154     1  1.313501154 0.412857620 0.521230246
   RESIDUAL     .661749E+03   208  3.181487011
-------------------------------------------------------------------------------
*
DEP VAR:       Y4       N:  210    MULTIPLE R:  .000    SQUARED MULTIPLE R:  .00
ADJUSTED SQUARED MULTIPLE R:  .000     STANDARD ERROR OF ESTIMATE:  1.78544161
  VARIABLE     COEFFICIENT    STD ERROR     STD COEF TOLERANCE    T    P(2 TAIL
CONSTANT       1.052116822 0.324565642  0.000000000 1.0000000  3.24161  0.001
      I2      -0.000056291 0.016529974 -0.000236121 1.0000000 -0.00341  0.9972
                               ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO        P
 REGRESSION     0.000036968     1  0.000036968 0.000011597 0.997286168
   RESIDUAL     .663063E+03   208  3.187801743
-------------------------------------------------------------------------------
*
DEP VAR:       Y4       N:  210    MULTIPLE R:  .175    SQUARED MULTIPLE R:  .03
ADJUSTED SQUARED MULTIPLE R:  .026     STANDARD ERROR OF ESTIMATE:  1.75784616
  VARIABLE     COEFFICIENT    STD ERROR     STD COEF TOLERANCE    T    P(2 TAIL
CONSTANT      -1.361539572 0.948203359  0.000000000 1.0000000 -1.43592  0.1525
      I7       0.115748235 0.045117107  0.175136501 1.0000000  2.56551  0.0110
                               ANALYSIS OF VARIANCE
   SOURCE   SUM-OF-SQUARES    DF  MEAN-SQUARE     F-RATIO        P
 REGRESSION     .203380E+02     1  .203380E+02 6.581824120 0.011006192
   RESIDUAL     .642725E+03   208  3.090023128
```

```
                              Exhibit 8              Page 5
                         REGRESSION ANALYSIS

*
DEP VAR:       Y4      N:  210    MULTIPLE R:  .220    SQUARED MULTIPLE R:  .04
ADJUSTED SQUARED MULTIPLE R:  .044     STANDARD ERROR OF ESTIMATE:  1.74167229
  VARIABLE     COEFFICIENT     STD ERROR     STD COEF TOLERANCE     T     P(2 TAIL
CONSTANT     -2.823207963  1.196834981  0.000000000 1.0000000 -2.35889  0.0192
      I8      0.228829787  0.070331915  0.220064113 1.0000000  3.25357  0.0013
                             ANALYSIS OF VARIANCE
  SOURCE   SUM-OF-SQUARES     DF  MEAN-SQUARE     F-RATIO       P
 REGRESSION    .321109E+02     1  .321109E+02 .105857E+02 0.001329968
   RESIDUAL    .630952E+03   208  3.033422368
-------------------------------------------------------------------------------
```